DOCUMENT RESUME

ED 384 348 IR 017 227

| | |
|---|---|
| TITLE | Future Plans: Making the Most of Technology in the Classroom. Planning Guides. |
| INSTITUTION | Southeastern Regional Vision for Education (SERVE), Tallahassee, FL. |
| SPONS AGENCY | BellSouth Foundation, Inc. Atlanta, GA.; Southern Regional Education Board, Atlanta, Ga. |
| PUB DATE | 93 |
| NOTE | 88p.; Presented as white papers at the "BellSouth TechKNOWLEDGEy '93: Pathways to Progress" Conference (August 5-6, 1993). For related videotape, "Future Plans: Making the Most of Technology in the Classroom," see IR 017 228. |
| PUB TYPE | Speeches/Conference Papers (150) -- Guides - Non-Classroom Use (055) |
| EDRS PRICE | MF01/PC04 Plus Postage. |
| DESCRIPTORS | Educational Innovation; *Educational Planning; *Educational Technology; Elementary Secondary Education; Information Technology; *Perspective Taking; Program Implementation; *School Districts; *Statewide Planning |
| IDENTIFIERS | *Districtwide Planning |

ABSTRACT

The three papers contained within this volume examine planning for technology use in the classroom. The first paper, "PERSPECTIVES: School Level Educational Technology Planning" (Tracey Bailey, Geri Martin, Cathy Hutchins, Charles Terrett, and Ken Russell) discusses the process of educational technology planning from several different viewpoints: teacher, principal, technology facilitator, superintendent, and lay member of a site-based management team. These perspectives include discussions on keys to successful planning, obstacles and strategies to overcome them, key contributions and specific roles of each perspective, and equity issues. "The Good and Bad of District Planning for Technology Use" (James A. Mecklenburger), the second paper, examines district technology planning using a metaphorical approach: technology planning is like marriage planning; technology is not gadgets: technology is know-how; information and communications; technology planning and change; technology is for people; school is a technological institution; school in a technological environment; and the vision thing. The final paper, "The Key Elements of Effective State Educational Technology Planning" (Dave Brittain, and others addresses state planning issues, concerns, and processes: stage one--preparing, strategic vision, goals and objectives, needs assessment, scope, political issues, defining stakeholders, organizational structure, model schools, funding, equity, staff development, vendors and outside consultants; stage two--writing; stage three--evaluation; summary--tips from the experts, and a planning checklist. A list of resources, including planning resources, commercially developed tools, organizations and contacts, documents of interest, and relevant regulation is provided. A brief discussion guide for use with the related videotape is appended. (MAS)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

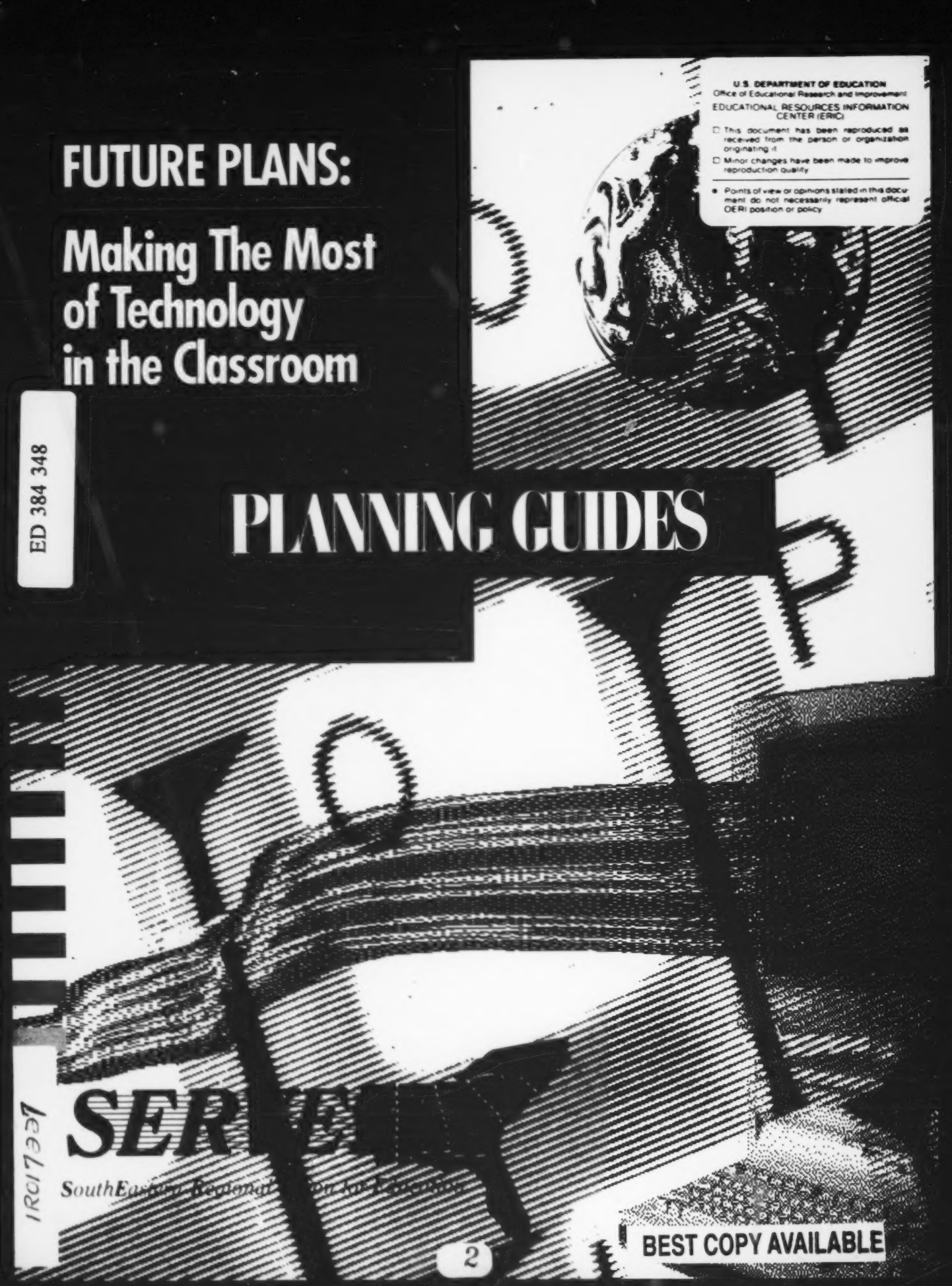
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

# FUTURE PLANS:

## Making The Most of Technology in the Classroom

ED 384 348

# PLANNING GUIDES



IR017337

SERVE

SouthEastern Regional [illegible] for Education



BEST COPY AVAILABLE

# FUTURE PLANS

## *Making the Most of Technology in the Classroom*

## PLANNING GUIDES

### Index


***PERSPECTIVES: School Level Educational Technology Planning***

*Tracey Bailey, Geri Martin, Cathy Hutchins, Charles Terrett, and Ken Russell*

**Page 3**

***The Good and Bad of District Planning for Technology Use***

*Dr. James Mecklenburger*

**Page 39**

***The Key Elements of Effective State Educational Technology Planning***

*Dave Brittain, Elsie Brumback, Brenda Williams, BellSouth and the Southern Regional Education Board.*

**Page 57**


*The following documents are reprinted by SERVE with permission of BellSouth and the Southern Regional Education Board. These planning guides were collaboratively produced by BellSouth, SREC, and recognized field experts and were presented as white papers at the "BellSouth TechKNOWLEDGEy '93: Pathways to Progress" conference.*

# *"BellSouth TechKNOWLEDGEy '93: Pathways to Progress" Conference*

*August 5-6, 1993*

## *PERSPECTIVES:*

## *School Level Educational Technology Planning*

*Tracey Bailey*
*Geri Martin*
*Cathy Hutchins*
*Charles Terrett*
*Ken Russell*

*This document was commissioned by BellSouth and the Southern Regional Education Board. It reflects the perspectives of five individuals who have demonstrated a significant personal involvement in the successful integration of technology in schools.*

BellSouth TechKNOWLEDGEy '93

Pathways to Progress

**TABLE OF CONTENTS**


**5**

*Introduction*

**7**

*Teacher Perspective, Tracey Bailey*

**14**

*Principal Perspective, Geri Martin*

**21**

*Technology Facilitator Perspective, Cathy Hutchins*

**26**

*Superintendent Perspective, Charles Terrett*

**32**

*Lay Member of a Site-Based Management Team Perspective, Ken Russell*

# *Introduction*

Because it is the plan closest to the classroom, the school level educational technology plan is critical to the successful integration of technology and education. At this first level, educational needs are initially identified by the teacher and innovation in learning begins. In this way, schools can become a critical source of input for developing educational and technological goals at both the state and district levels. The effective school plan not only charts a course for the successful integration of technology that is based on sound educational goals; it also establishes a medium for communicating best practice with the district and the state.

Although planning at all three levels — school, district, and state — is challenging, some would argue that building successful school plans is most challenging. Because school, district and state planning is interdependent, the school level plan must establish clear building-wide goals while it also reflects district and state mandates. This requires a great deal of cooperation and organization.

To help planners at all levels (school, district and state) gain insight into the process of technology planning at the individual school level, five school planners have each contributed a short paper. Each paper is written from one of five different perspectives: that of a teacher; a principal; a school technology coordinator; a superintendent; and a lay member of a site-based management team. Each of these persons has demonstrated significant personal involvement in the successful integration of technology in schools. It is from their experiences that we benefit.

### *Some of the questions these planners were asked to address in their reports include:*

- How do you define your role in school level educational technology planning?

- From your perspective, what are the keys to successful school level educational technology planning?
- What obstacles to educational technology planning have you encountered that are specific to your role?
- What strategies have you used to overcome these obstacles?
- What must you do to facilitate planning at your site?
- What do you consider to be your key contribution to school technology planning?
- In your opinion, what conditions must exist for building successful school level plans?
- What is your specific role in ensuring that these things exist?
- What are some of the issues you have faced regarding equity and how have you addressed them?

# *Perspective on School Level Educational Technology Planning*

**TRACEY L. BAILEY**
*1993 National Teacher of the Year*
*Satellite High School*
*Brevard County, Florida*

## *Introduction*

As a classroom science teacher and as a technology advisor for our school, my primary role involves first identifying the critical instructional needs of students and teachers, and then matching those needs with appropriate solutions based on my knowledge of current technology. Since our school, like most schools across the nation, does not yet have a dedicated technology coordinator, I am frequently asked to make decisions about the entire technology plan and direction for our campus.

It is important to note that the classroom teacher is in the very best position to decide the instructional technology needs of the classroom — both for students to learn at their maximum potential and for teachers to be effective in classroom management and instruction. However, in order for this core group of teacher experts to be useful and accurate in technology planning, they must be actively updated and allowed to work with new equipment and software. They must also periodically visit these schools, model technology programs, and be allowed to meet with technology vendors to investigate possible solutions. This should be an on-going process.

## *Keys to Successful School Level Educational Technology Planning*

*There are several essential areas in school technology plans:*

- ✧ Vision, Goals and Educational Outcomes
- ✧ Current Capabilities & Technology Advances
- ✧ Acquisition & Integration Plan

- Training & Staff Development
- Network/Technology Management

It is of paramount importance that the school level planners have a clear vision of what educational objectives they are trying to reach before going very far in technology planning. Frequently, teachers have been isolated in their classrooms from year-to-year advances in educational technology and therefore will need to travel with a Core Technology Planning Team from that school to visit other sites to observe possible solutions. Core group meetings and discussion with technology vendors are also helpful. These are essential not only for updating all the members of the planning group on the current technology options, but also for helping to create the school vision of what can be realistically achieved with effort and good planning!

In addition to deciding which equipment and software solutions fit into the overall technology plan and timeline for the school, an important task is also to implement an Acquisition & Integration Plan. This acquisition plan not only outlines a time frame for equipment and software purchases, but also specifies a policy to facilitate the most efficient distribution of new equipment among the faculty and its integration into the curriculum and daily activities of the school. The equipment MUST go where it is going to be used the most, and therefore a "corporate attitude" must be developed which acknowledges that early adopters, innovators, and those willing to learn will receive the newest equipment, while those unwilling to change or learn may have to wait. This kind of policy will reward and encourage innovation and excellence, not only in areas of technology, but also in the entire process of school reform. It is not favoritism, but rather rewarding and encouraging excellence.

The issue of training and staff development in the technology planning and integration process cannot be

emphasized enough. Educational, in-service training has for too long been characterized by one day, hit and run, often misdirected workshops. This cannot be allowed to happen with school-wide technology initiatives. It must also be realized that a substantial reform is necessary to make the best use of in-school talent in the areas of reallocated time for training, flexible scheduling, teacher experts training other teachers, and providing incentives for innovative teachers and their leadership. If planned correctly, the integration of new technology can be a powerful tool for energizing school reform, and for returning the leadership of schools to the positive, innovative staff members.

A brief word about network and technology management — it is critically important that a "full-strength" commitment in personnel and resources be given to the individual(s) responsible for managing the installation, support, training, and oversight of technology initiatives within each school. Suffice it to say that simply adding "network/technology management" to the job description of an already overworked computer teacher or media specialist is a formula for disaster. This is a full-time job, and is the single-most critical position in technology implementation for each school.

### *Obstacles to Educational Technology Planning*

*Among the more serious obstacles I have seen are the following:*

- ✧ Resistance among some colleagues to personal or curricular change
- ✧ Lack of awareness of current technological capabilities
- ✧ Lack of scheduled time to learn about and investigate new equipment
- ✧ Lack of reallocated time for planning
- ✧ Lack of reallocated time for training and staff development

- "Prescriptive" technology solutions developed without school input
- Funding issues, both for on-going investment in equipment, and for a full-time technology coordinator

### *Strategies Used to Overcome These Obstacles:*

- Establish a Core Technology Team of approximately two teachers per department, plus one or two administrators.
- Technology planning is *long-term* and *continuous!* Keep planning!
- Visibly and publicly support innovative teachers and early adopters.
- Use "teachers-training-teachers" approach as much as possible.
- Allow extra reallocated time for best teachers to "evangelize" and train.
- Allow reallocated time for lead teachers to work with new equipment, try out new software, meet with vendors, and plan together.

### *Strategies to Facilitate Planning at School Level*

From the very beginning of technology planning, a core team of innovative teachers must be selected to form the vision and then help communicate that vision to the rest of the faculty. These are also the teachers who will be receiving the first training and equipment, and will then be taking the responsibility for much of the training of the rest of the faculty. The job description of these Core Technology Team members could be summarized as Investigator, Evangelist, Trainer, and Project Developer. It is essential to select your best and most innovative teachers for this position, and to give them the proper support, time, encouragement, and leadership to carry the vision and the reality of your technology initiatives to the rest of your school.

### *My Key Contribution to School Educational Technology Planning*

My key personal contribution to our school-level planning has been in three areas. The first is the ability to identify specific areas of instructional or administrative procedure which could be greatly benefited through the use of appropriate technology. The second has been to be an early adopter, or investigator, who has prior experience with many of the hardware and software technologies being considered for school-wide distribution. Nearly every school has technology innovators, but they are not always given a leadership role in school-wide planning, and their experience is thus wasted. Thirdly, I have been a key trainer and liaison to the rest of the faculty by serving as the Core Technology Team Leader. In this capacity, I have worked with six to ten other teachers to serve as the evangelists, visionaries, and trainers for our faculty.

### *Ingredients for Building Successful School Level Plans*

- ✧ Vision of a supportive principal, backed by a core technology team
- ✧ Clear goals and focus on educational outcomes
- ✧ Full commitment to training and staff development from the start
- ✧ Full commitment to reallocated time or flexible scheduling for planning, site visitation, meetings with vendors, etc.
- ✧ Visible and public support for innovators and early adopters
- ✧ Incentives and rewards for extra effort, time and leadership
- ✧ A technology coordinator or network administrator fully trained in practices such as configuration management and discrepancy reports, and who is given full administrative support.

### *My Role in Encouraging a Conducive Environment for School Technology Planning*

My specific role in ensuring that this environment exists is to act as a positive leader — an evangelist and trainer — along with the Core Technology Team, to share the vision with the rest of the faculty and to support our principal in her efforts to bring about this change. Much of this sharing and training is done through the mechanism of soliciting the faculty opinion on different hardware and software under consideration, and receiving their input on proposed areas for initial technology change. The faculty feels far less alienated and obviously is much more willing to buy into the overall plan when they have been included in a number of decisions.

In order for me to be an effective, positive leader and trainer for our faculty, I must also actively work to keep myself current in hardware and software advances and price changes. I must also meet often with vendors to investigate these new products, because technology planning is an ongoing process that requires continual revision and updating to be effective. As a normal classroom teacher, this time would not be available to me without a full commitment from my principal for support and flexible scheduling.

### *Equity Issues*

Our schools have handled the issue of equity very well so far. At the level of each individual student, we know that the appropriate introduction of technology on a schoolwide basis helps "level the playing field" between students from different ability groups and socioeconomic backgrounds where they might not otherwise have access to these technologies and learning experiences. At the classroom level, it is true that some classrooms may receive equipment or software before others, but this is entirely dependent on the level of innovation and confidence of that particular classroom teacher. This is prob-

ably necessary and desirable in order to train the innovative teachers so they may in turn train and encourage the rest of the faculty. This will also facilitate an easier, school-wide technology integration.

# *Perspective on School Level Educational Technology Planning*

**GERI MARTIN, PRINCIPAL**
*Brushy Creek Elementary School*
*The School District of Greenville County*
*Taylors, South Carolina*

## *Introduction*

Brushy Creek Elementary is rapidly becoming a "school of the future." A technological transformation is evolving throughout the school and taking us beyond the four walls of our building. As we restructure our learning environment and curriculum to integrate technology as a "tool" for learning, we are preparing our students for "their" future and not "our" past.

Technology is a catalyst that propels change, a tool that makes it possible and empowers teachers and students by:

- Enabling teachers and students to utilize a variety of current resources
- Enhancing students' skills in gathering, interpreting, evaluating and applying information
- Providing opportunities to work cooperatively with others and use decision-making skills
- Encouraging students to use critical-thinking skills and to communicate effectively
- Actively involving students in the learning process
- Creating an environment that is interesting and success oriented

## *My Role in School Level Education Technology Planning*

Initially, my role was instilling awareness and then creating a "vision" of how technology could be utilized in an elementary school environment. For the vision to become a reality, I realized it would require time, support, commitment, a flexible environment, and a "team

approach" to nurture the change that would lead to a positive mindset about the use of technology in instruction. By actively involving staff in brainstorming sessions, making decisions about what change was needed, curriculum planning and staff development, they were better prepared to embrace change. As this transformation took place, they had more ownership of the technological vision for the future of our school. They began to decide what they wanted technology to do and how it could be utilized as an instructional tool.

In 1993, my role continues to be one that nurtures and supports change, provides time for teachers to have collaborative planning, encourages innovative projects and provides adequate training and staff development. My staff also recognizes that I too am a "learner" working alongside them as a member of the team.

Another important aspect of my role is to keep abreast of the rapid changes in technology and how these changes impact on our technology plan. My involvement in researching information about new products — both hardware and software — is essential to fostering the ongoing success of effectively utilizing technology. Since our plan serves as a "road map to the future," it requires frequent monitoring, adjusting and making detours as needed.

Communicating to our parents and school community the necessity and value of utilizing technology to better prepare our students for the 21st century is critical to our success in gaining their support. I work closely with the PTA, the School Improvement Council, and business community to elicit their support and partnership.

Recognizing the readiness level of each staff member is essential for new changes in enabling them to feel comfortable in moving in new directions and assuming additional responsibilities. Cultivating their ability to share their expertise and serve as "sitebased" consultants strengthens the total program.

Finding ways to finance a comprehensive technology plan consumes much of my time.

Evaluating new directions, seeking technical assistance and information for ongoing planning and additional funding is a constant challenge I face.

### *Keys to Successful School Level Planning*

Following are some key elements in successful school level educational technology planning:

- ✧ Create a shared vision of the purpose and direction of utilizing technology
- ✧ Provide opportunities for everyone to be involved
- ✧ Provide leadership, support, and motivation
- ✧ Build a "team" environment
- ✧ Provide a flexible environment that will nurture change and encourage teachers to be risk takers
- ✧ Provide staff development and training
- ✧ Empower teachers by utilizing their expertise, allowing them to be involved in the planning and decision making process
- ✧ Provide time for collaborative planning
- ✧ Provide incentives for change
- ✧ Understand that "change" is a process that takes time
- ✧ Develop a "resource" relationship with people who can provide technical expertise and accurate information about emerging technologies
- ✧ Assist people in understanding how technology can be integrated into the curriculum and not just added on
- ✧ Stay abreast of current trends in technology through conferences, onsite visitations and technology periodicals
- ✧ Realize that developing and implementing a technology plan is a process that will constantly require monitoring and adjusting

### *Obstacles to Educational Technology Planning*

Our main obstacle was not having a budget to support our comprehensive technological plan and finding creative ways to provide support. Another problem I instantly encountered was convincing our district to support our innovative infrastructure that would be critical to the successful implementation of our technology plan. An ongoing obstacle has and will probably continue to be the lack of quality time for training and staff development.

### *Strategies Used to Overcome Obstacles*

We developed the technology plan which enabled us to complete specific phases as money became available. Release time was provided to write grants and plan projects that would provide funds for support. Creative financing, school incentive funds, and pooling funds from a variety of sources funded our existing program.

To provide quality time for teachers to plan collaboratively and participate in training and staff development, professional leave was utilized. Inservice replaced numerous faculty meetings, and teachers could work together as grade levels. Capitalizing on the talents of staff members has reduced the cost of having consultants to provide training. "Teacher teams" have received specialized training in various technologies and now share their expertise with other staff members.

The technology team, which represents all segments of our school staff, meets monthly to discuss progress, concerns, curriculum and additional needs. This has also been effective in communicating what is happening throughout our schools.

### *Facilitating Planning at Our School*

*Some of the things I do to facilitate planning are:*

- ✧ Have teachers complete a survey to indicate their readiness level, staff development needs and areas of expertise

- Elicit feedback and suggestions from teachers and staff
- Invite vendors to demonstrate new software and hardware at school so teachers can be better informed about new products
- Work with office staff to determine what inservice training they need to better support teachers
- Attend conferences, visit other sites using technology and read technology magazines and catalogues to stay abreast of new products, trends, etc.
- Provide as much release time for teacher training and planning as possible
- Train and involve parents as technology volunteers

### *Key Contributions of a Principal to Educational Technology Planning*

- Being an "active" visionary leader
- Painting the vision, sharing the vision, nurturing the vision and assisting in turning the vision into reality
- Understanding the curriculum and knowing how technology can be integrated . . . then sharing that knowledge
- Helping teachers, parents, staff and district realize the "benchmarks" we've achieved in technology, celebrating that success and utilizing those benchmarks to be "springboards" to provide a continuum of change

### *What Must Exist for Building Successful School Level Plans*

- Vision
- "Mindset" for change
- Leadership
- An environment that nurtures change
- Ability to think in broad terms
- Involvement of total staff
- Realization that change takes time

- ✧ Curriculum that meets the needs of children
- ✧ Awareness of learning styles
- ✧ An understanding among parents and teachers of the purpose and value of using technology

### *My Role In Ensuring That These Things Exist*

Prior to our restructuring to utilize technology, other curriculum transformations had already begun. Instilling the mindset for change to implement new methodologies such as cooperative learning, hands-on approach in math and science, incorporating whole language and becoming knowledgeable about learning styles paved the way to integrate technology. Supporting teachers with the skills that enabled them to accept and manage change has been and will continue to be critical to our overall success. Continued staff development training and time for teacher collaboration will prepare and energize the staff for future success.

We constantly remind everyone that Whitney Houston states our vision through her song "The Greatest Gift of All." Children are our future and it is our responsibility to train them well and let them lead the way. This reinforces the value and purpose of our vision.

As a facilitator of change, it is imperative that I recognize the "benchmarks" we have achieved, reward and celebrate our successes and utilize these benchmarks as springboards to provide a continuum change.

Offering continuous reassurance, technical support and training fosters greater use of technology as teachers and students fully integrate the use of technology in the classroom. It is my belief that technology will become transparent.

Involving parents in the technological transformation is a critical ingredient to ensure success and gain support for the present as well as the future. Presently, children are sharing at home what they are creating in the classroom by

saving their work in a "run time" format. This enables parents to be more informed about what their child is doing at school.

### *Issues Faced Regarding Equity*

- Insufficient number of computers to serve the school population of 750 students
- Creating a distributive network throughout the building enhances the mobility of the limited number we have
- The ability to access the modem in the library and the file server from any location in the building provides greater access to technology
- Creating a mini-lab in our library provides access to all teachers and students

# *Perspective on School Level Educational Technology Planning*

**CATHY HUTCHINS**
*Model Technology School Facilitator*
*Webster Elementary School*
*St. Augustine, Florida*

## *My Role in School Level Educational Technology Planning*

My role in school level educational technology planning is both far reaching and critical. As a state selected Model Technology School Facilitator, I play a more avid role than perhaps others at the school level, since I am employed full time to oversee all technology implementations in our school.

As a planner, one of my roles is to stay in tune with our technology plan, using it as a guide and road map for immediate and future technology and application implementations. It is my job to ensure that the plan is implemented, and assist teachers when necessary as they introduce technology into their curriculum.

I also investigate the feasibility of each purchase for the elementary school and determine if it is a cost-effective solution.

My role also includes budgeting. Each year, I review our plan and budget funds into different areas based on existing and future implementation needs.

On a yearly basis, our plan is evaluated by a steering committee and revised as needed.

## *Keys to Successful School Level Educational Technology Planning*

*The keys to successful school level educational technology planning are to:*

- Have a vision that is shared by everyone involved
- Have a leader who is willing to support, motivate, communicate and drive technology implementations

- Be open to change, be forward thinking, and willing to take risks and try something new and different
- Be knowledgeable enough to make sound decisions
- Understand about technology and curriculum relationships and how they work together
- Be committed
- Ask questions
- Attend conferences and read technology-related periodicals to stay informed

### *Obstacles to Educational Technology Planning*

I have faced several obstacles in the past, but the major one is funding. On a few occasions, lack of funding has forced us to revise our plans, settle for an alternative course of action, or completely miss the opportunity to achieve some of our technology goals and objectives.

Other obstacles include lack of time to plan with teachers, train them adequately, and keep them actively utilizing technology in the classroom.

### *Strategies to Overcome these Obstacles*

Where budgeting is concerned, we have turned to business partners when we felt strongly that they could assist. However, on most occasions, I have had to revise our goals/objectives to meet the needs of our budget and place the ones that are not achievable on the following year's plan. In many cases, we have prioritized our goals/objectives to put the basics in place first, with the ability to add on to those basics in the future.

I have implemented a needs assessment tool that I use to poll teachers about their technology needs. This year, I provided teachers with a day a month to plan as a team, or with a group of teachers of their choice. This offered us the mutual opportunity to interact and discuss ways for teachers to best utilize technology in their classrooms.

We talked about their curriculum, resources available to support their plans, and identified additional training needs. This special planning day also gave teachers who did not "buy into" technology and opportunity to work with teachers who felt comfortable with the use of technology. As a result, many more teachers are now using technology in their classrooms than in the past.

I also capitalized on the expertise of our teachers, creating a group called "Teacher Experts" in areas they identified as their specialty. Their colleagues can come to these "Teacher Experts" when they have questions about hardware or software instead of having to come to me.

### *Ways to Facilitate Planning*

There are a number of things I do to facilitate planning:

- ✧ Evaluate yearly goals and objectives of our plan
- ✧ Inform all administration and staff of goals and objectives
- ✧ Get feedback and suggestions from teachers/administration
- ✧ Work with teachers
- ✧ Work with vendors to keep informed of new products
- ✧ Keep up-to-date with the latest technologies by reading periodicals and attending conferences

### *My Key Contributions to Educational Technology Planning*

- ✧ Being knowledgeable about all technologies and understanding how they fit into the elementary classroom
- ✧ Knowing what works and doesn't work so sound investments can be made and cost-effective solutions developed
- ✧ Planning with others in mind, remembering that people accept, learn, and use technology at their own pace

### *What Must Exist for Building Successful School Level Plans:*

- ✧ Vision
- ✧ Leadership
- ✧ Support
- ✧ Training
- ✧ Free access to technology
- ✧ Willingness to change, be a risk taker
- ✧ Ability to manage software and hardware implementations
- ✧ Teachers who are trained to understand and utilize technology effectively
- ✧ Curriculum changes
- ✧ Flexibility

### *My Specific Role in Ensuring That These Conditions Exist*

As the facilitator for our Model Technology School, I have shared the vision that we all bought into when we wrote our plan.

- ✧ I work actively to support our vision and keep it alive as we move toward the 21st century. I am always sharing with others how and why the impact of technology is changing classrooms, curriculum and teaching.
- ✧ I continue to provide leadership for our plan and support those teachers who are comfortable with technology, as well as those who are not acquainted with its capabilities.
- ✧ I ensure that our school's training needs are met by administering a needs assessment tool quarterly. Based on the information provided by teachers, I then arrange inservice training.
- ✧ I take great pride in ensuring that all technology is accessible to both teachers and students. Different types of technology are found in classrooms, the media center, and our video studio production room. It is my responsibility to keep back-up machines available when repairs are needed, so the teachers and students can continue their work.

It takes time to become a risk taker with an open mind and the ability to remain flexible. For some individuals, this comes naturally, but for a majority of people, it takes time and is a change process. I have found that it takes between two to three years before teachers understand how technology can be used effectively in the classroom to meet curriculum needs.

Teachers must first learn to operate the computer. Then they must become familiar with appropriate software for classroom use. I often provide this kind of training to our teachers. In addition, they are sent to conferences to learn what is new. Armed with this knowledge, they can then make requests for the purchase of specific kinds of hardware and software.

Managing hardware and software implementations is a challenging task. Keeping a full inventory and handling equipment and software repairs is a job of its own. As a planner, you need to be informed about all the technology that exists in your building. This helps not only in the planning effort, but also allows you to share information with teachers about available resources that can enhance their curriculum. In addition, it is important to be able to troubleshoot problems as they exist, and make every effort to keep the technology functional at all times.

### *Equity Issues*

I have concerns about the number of machines allocated per classroom. The issue becomes apparent with exceptional education classes versus regular classes. I often see exceptional education classrooms receiving more technology due to allocations, while others have only minimal equipment.

Equity also becomes a problem when some teachers ask for more technology for their classroom, forcing others to share equipment on a check-out basis.

# *Perspective on School Level Educational Technology Planning*

**CHARLES TERRETT**

*Superintendent, Fulton County Schools*
*Hickman, Kentucky*

## *Introduction*

The successful implementation of technology at the school level depends on the following factors:

- The acceptance of the use of technology by those "in the trenches" —classroom teachers!

  It is imperative that school administrators and others who advocate the use of technology to solve educational problems understand that putting technology into place without the support and understanding of those who will ultimately use it is a sure design for failure.

- A clear definition of the purpose for which the technology will be used.

  In the past, there have been too many instances where items such as computers have been purchased before a specific use has been identified. This wasteful approach means that the technology will not be used, or at best, "under used" by those it was supposed to help. It is critical that an educational plan first be developed to address the educational needs of students. After that, technological solutions to these specific educational needs should be explored. This method of planning lends itself to the development of real solutions that effectively address the educational needs of the district and the students.

- A strong training program to ensure that students, teachers, administrators, and others learn to use the technology in the most effective and cost-efficient manner.

Many viable solutions to problems through the use of technology have failed, not because the plan was faulty, or the technology ineffective, but because the implementors did not understand the technology and its capabilities to solve existing educational problems.

- ✧ A clear understanding of what technology is and the different types of hardware and software that are available for educational problem solving.

  When thinking of technology, most individuals "picture" the use of computers. True, most of today's technology is computer-based, and these machines are perhaps the most important and most widely used technological solutions. However, other forms of technology must be understood and considered when seeking solutions to educational problems. Information systems contained in CD ROM and Laser Disk technology offer great promise for both classroom demonstration projects and information storing capability.

The latest Distance Learning projects illustrate the ability to access resources, both print and human, and utilize those resources in a cost-effective manner that meets educational needs.

Other technological solutions using methods and materials we have not even contemplated loom in the future. If used properly and effectively, they promise the capability to expand the "learning curve" to horizons we cannot even envision in today's environment.

## *Implementing Technology in the Local School District: The Superintendent's Role*

The role of the superintendent who is introducing technology into a school district is not unlike his/her role in implementing other quality educational programs.

*The superintendent should:*

- ✧ Provide leadership and direction for the program

- Help secure essential resources — both financial and human — to ensure appropriate planning and training activities
- Serve as a resource for pulling together a vision for the program that incorporates the ideas of many stakeholders
- Oversee the development of these multiple ideas into a cohesive and workable plan

### *Keys to Successful School Level Educational Technology Planning*

The ingredients of successful educational technology planning are similar to those found in successful plans for other programs in both the educational and business communities. These include:

- Early involvement of staff that will use the technology — particularly classroom teachers
- Understanding of all involved parties about the educational problem to be addressed
- Open and inclusive discussions about the most efficient means of solving the problem, leading to a determination of whether technology can present a viable solution
- Exploration of different technological solutions
- Consensus about the technological approach
- Adequate training for those who will be using the technology
- Frequent monitoring and evaluation of the program for the purpose of adjustment and upgrading

### *Obstacles to Educational Technology Planning*

The greatest obstacle to planning for the use of technology to solve educational problems is the "human factor." Individuals are typically intimidated by technology because they do not understand its uses and potential. Most people consider technology "magic," and feel that it

is beyond their comprehension. Therefore, they try to avoid it.

Some consider technology "just another fad that will pass," while still others feel that, "we just can't do that sort of thing here!" These obstacles are real and must be overcome before any technological solution can be considered — much less implemented.

Strategies must be developed to overcome these obstacles. In our case, when we wanted to get teachers interested in technology as a solution to educational problems, we offered a voluntary basic computer introduction training program to those staff who were interested. Thirty-minute courses were held twice a week at the end of the school day.

Initially, very few staff members took advantage of the program. Those who did received a new computer and appropriate support systems for their classrooms. Items such as electronic grade books and word processing systems that were easy to use and had the potential to reduce time spent on "clerical chores" piqued the interest of the staff members who did not participate in the training.

When a similar program was offered the following semester, available slots were full and a waiting list soon developed.

### *How to Facilitate Planning for Technology*

As noted early, the most important thing to remember when planning for technology is to identify educational problems first. If there is no problem, perceived or real, there is no need to develop a plan or solution. Therefore, it is critical that everyone involved understand what problems exist. After that, solutions can be sought.

Some very good solutions may not require technology, while others demand its use. It is imperative that those seeking solutions understand that technology does not offer a magic cure for problems.

However, it is equally important that they give the same consideration to both technological and non-technological solutions. Once technological solutions are recognized as realistic solutions, the planning process can begin and will naturally involve all participants.

Simply put, technology must be recognized as a "part" of the educational process — a tool similar to books or other resource material.

*The local superintendent's role as a facilitator is to:*

- ✧ Provide encouragement for others to proceed with the somewhat "different" solution offered through technology
- ✧ Encourage staff to become risk-takers when searching for solutions
- ✧ Demonstrate a willingness to risk failure through innovative and different solutions to educational problems

## *Building Successful School Level Plans*

It is essential to involve all staff in the planning process.

Without their input — both positive and negative — the planning process will be suspect and doomed to failure. If all staff members are involved and allowed to participate fully in the planning stages, they will be more likely to support the final plan — even if they were not supportive in the beginning.

Allocate sufficient resources, both financial and human, to meet the implementation requirements of the plan.

If the staff invests time and energy to develop a plan, and the school administration does not provide adequate support, both current and future plans are in jeopardy.

The planning process must be all-inclusive for both individuals and ideas.

In many cases, the most successful technology plans are the ones that contain elements of technology in con-

junction with elements of non-technological educational solutions.

### *Equity*

It has been my experience that the effective use of technology allows a more equitable expenditure of school district funds. The use of technology, even though viewed by some as expensive and unnecessary, creates a cost-efficient mechanism that gives students access to materials and resources that were previously unavailable.

While it is true that sometimes there are questions about where and why dollars are spent on technology, an all-inclusive planning process based on the development of solutions to educational problems illustrates how and where the resources are being used and also projects the future use of these resources.

When individuals are involved in this type of planning for both short and long-term solutions, they better understand the process, as well as why and how the resources are being used. This open, inclusive approach to all types of planning — not just for technology — ensures that all staff have ownership of the plan and accept it.

### *Conclusion*

Technology does not offer a magic solution to all educational problems. However, the application of technological solutions to educational problems offers promise when these solutions are recognized for what they are — pieces to a great puzzle that cannot be solved by one specific method or approach.

Technology must be viewed as one of many available tools for addressing educational problems. As long as educators understand that technology is a tool, and not "magic," then realistic expectations can be achieved. When this happens, technology will take its place alongside other concepts and ideas in the delivery of effective educational opportunities for our students.

# *Perspective on School Level Educational Technology Planning*

**KEN RUSSELL**
*Vice President, Business Development*
*Access Development Corporation*
*Brentwood, Tennessee*

## *Introduction*

Most of us would agree that the Information Age is upon us, and that our world is about to change. If we follow the sudden string of stories about the National Information Infrastructure or National Research and Education Network, we might either ask how we are going to catch the wave, or how we were left behind.

How many of us will be left behind? An examination of the statistics for Adult Literacy may give us some insight. Nationwide, nearly thirty-three percent of the workforce either lacks a high school diploma, or may hold a diploma and still lack functional language and math skills beyond an eighth grade level.

As we evaluate the future of our own communities, regions and states, and especially as we examine the capabilities of our educational institutions to lead our children and young adults into the 21st Century, it is clear that we have reached a critical fork in the road. How many of our state-funded public schools are turning out students ready for today's employers? Are these students developing the skill sets necessary to make them successful in the decades ahead? I believe these questions are what have prompted most of us into examining the role of technology in education.

## *Defining Roles in School Level Educational Technology Planning*

About eighteen months ago, I was introduced to a program called "Teaching, Learning and Technology." I had just spent the previous twelve months visiting a series

of advanced telecommunications trials sponsored by the Regional Bell Operating Companies and GTE. The most powerful application of technology I saw during this quest was interactive multimedia educational courseware. Following the suggestions provided in "Teaching, Learning and Technology," I was exposed to several examples of Classrooms of Tomorrow.

After witnessing firsthand the proper use of technology in the classroom, I spent time touring schools throughout Middle Tennessee. Most of these schools had at least one television monitor and a VCR. All of them had filmstrip projectors and portable record players. A few had Whittle Communications' Channel one systems, providing twelve minutes a day of special news programming. One Apple Classroom of Tomorrow had an impressive array of educational technology, being used to provide exceptional educational programming.

For the most part, however, I found that most teachers are not prepared to implement technology in the classroom, and most administrators are not even aware of what is possible. This is where my involvement in school level planning began.

Technology planning will continue to take place, quite appropriately, at all levels. Schools have so many "Partners" now that it is difficult for administrators to find time to meet with them all. Everyone, from the state telecommunications agencies to the municipal governments and even Chamber of Commerce education committees, wants to be included in the process. One of the easiest ways to draw a crowd of politicians is to announce a meeting for the purpose of involving the community in restructuring the schools.

Throughout last year, I have been actively involved as a volunteer in school level technology planning in two counties, and somewhat less actively in three other

counties. Part of my business involves design and implementation of Campus Wide Information Systems for colleges and universities, and interactive courseware development for Adult Basic Education and job training. I also provide some services for schools involved in special programs for "At Risk" students. I have set up a series of multimedia systems for South Central Bell, with the "Teaching, Learning and Technology" program, and provided training in its use for educators at schools selected by South Central Bell to receive and use this equipment on loan.

This involvement in education at all levels in Tennessee has provided a rather unique view of public education. I can assure you that there are remarkable resources being applied, both in terms of human resources and infrastructure, yet the incremental progress being made is so slow that I believe the only hope for significant change is in broad based initiatives involving city, state, and regional involvement by government and business as well as the public at large.

### *An Action Agenda*

Suggestions for community leaders and individuals who may be in a position to influence positive change in education:

- ✧ Build a vision of the future, based on some exposure to what is being done in the lab and in the real world. Try not to take a naive approach to education reform. Make an effort to become aware of what is going on. Also educate others. The most significant obstacle most communities will face in changing inadequate school systems is building an understanding of the need in the community as a whole.
- ✧ Get involved in efforts to provide respected channels of input to state legislators and agencies. Telecommunications networks serve many purposes, and while it may seem that education would be the top priority, the

fundamental reason most state agencies and legislators find for their construction is to provide control over critical data that must be gathered and used to help justify continued state and federal expenditures.

- ✧ Develop an overview of what is happening on the state level. Generally, members of the legislature, state PUC officials and representatives from budget and finance departments participate on panels that approve general expenditures. These individuals are usually involved in extensive planning meetings that will determine the fate of a state education network.
- ✧ Share your understanding of needs and potential selections with state telecommunications and information technology departments through respected organizations and influential community leaders.
- ✧ Learn about available resources from all sectors of government and business through State Departments of Economic and Community Development. These departments are built on fruitful relationships with the business community, and will usually be a wealth of timely information.
- ✧ To learn more about the need for education reform, and the magnitude of the problems we face in education today, spend time working with state agencies and community-based organizations that provide Adult and Community Education Programs and education services for correctional institutions. Sadly, for example, after the educational system has failed an individual who ends up incarcerated, annual expenditures per person far exceed the cost of 12 years of public school.

### *Putting Your Vision in Motion*

After you have begun to build a vision of what may be appropriate for your school or community, prepare to spend several years working for progress and realize that the perspective you have gained by seeking out some of the

experiences and information described above is not a shared perspective. There are problems you will not understand, and many things you will not have time or the ability to communicate to those you must work with to affect change.

You can spend years, for example, trying to explain interactive multimedia educational courseware, but until someone sees and experiences quality educational programming, no explanation will communicate its power.

*Following are suggestions to help you achieve your vision:*

- If your immediate goal is to form a committee to plan for the implementation of technology within a school or school district, spend the first few months sharing what you have discovered with one or two potential team leaders, and with the Principal and/or Superintendent of Schools. You will not succeed without support from the top and solid leadership at the teacher level.
- Plan things well in advance. Experience has proven that if you expect teachers to be able to set aside time to participate on a fall planning committee, you need to identify your committee members by early spring of the previous school year, and agree on a general agenda, including regularly scheduled meetings before May. If you can spend some time during the summer in informal discussion, sharing experiences and perspectives, so much the better.
- If possible, obtain a copy of a commercially available planning tool such as Apple's "Teaching, Learning and Technology" program or IBM EduQuest's "K-12 Technology Planning." Even if you do not have access to the equipment necessary to use the software and videodisks, spend the summer studying the written materials accompanying the programs.

- ✧ To bring your vision for educational technology into sharper focus, seek out advanced technology trials and applications and examine their strengths and weaknesses. Your ability to build a vision of what the future will hold will be enhanced through exposure to what is being done already. Some suggestions include:
  - BellSouth Advanced Technologies Labs
  - Bellcore
  - AT&T Bell Labs
  - The Cable Television Laboratory
  - MIT Media Lab
  - MIT Project Athena
  - Carnegie Mellon University Project Andrew
  - Carnegie Mellon University Project Mercury
  - IBM Media Lab
  - Apple Media Lab
  - Ball State University
  - Georgia Center for Advanced Telecommunications Technologies
  - Ohio State Center for Advanced Studies in Telecommunications
  - ANS/Merit Network Service Center
  - CTE Cerritos, California (Fiber-Optic city network)

*At the very least, contact these sources for information and videotapes.*

- ✧ Attend regional and national educational technology conferences and general telecommunications conferences such as:
  - Digital World
  - EDUCOM
  - COMNET
  - SUPERCOMM
  - National Educational Computing Conference
  - Consumer Electronics Show
  - TED (the Japanese equivalent to Digital World)

- ✧ Visit Schools! (Local K-12 schools, urban and rural)
  - State Universities
  - Private Universities
  - Community Colleges
  - Vocational Technical Schools
  - Adult High Schools
  - JTPA Classes
  - Local Adult Basic Education Classes
  - Workplace Literacy Classes
  - Magnet Schools
- ✧ Get information about Federal Education Initiatives
  - Office of Educational Research Initiatives
  - Department of Education Electronic Access
  - Federal Adult Education Initiatives (126 total)
  - Department of Labor
  - Department of Defense
  - Department of Agriculture
  - NASA
  - TVA
  - Regional Technology Transfer Centers
  - Federal Energy Labs
- ✧ Examine State Initiatives through:
  - State Department of Education Technology Plans
  - State Adult Education Departments
  - State Department of Economic and Community Development
  - Other State Departments: Labor, Employment, Human Services, etc.
  - State Telecommunications Department Plans for State Networks
  - Regional Governmental Agencies

# *"BellSouth TechKNOWLEDGEy '93: Pathways to Progress" Conference*

*August 5-6, 1993*

**DR. JAMES A. MECKLENBURGER:**

## *The Good and Bad of District Planning for Technology Use*

***This document was commissioned by BellSouth and the Southern Regional Education Board. A narrative, this paper offers insight into the challenges of the planning process.***

BellSouth TechKNOWLEDGEy '93 Pathways to Progress

**TABLE OF CONTENTS**


41

*Like a Marriage*

44

*Technology is Not Gadgets;*
*Technology is Know-How*

48

*Information and Communications*

49

*Technology Planning and Change*

50

*Technology is for People*

52

*School is a Technological Institution*

53

*School in a Technological Environment*

55

*The Vision Thing*

56

*Conclusion*

# *The Good and Bad of District Planning for Technology Use*

**DR. JAMES A. MECKLENBURGER**
*President*
*The Mecklenburger Group*

## *Like a Marriage*

Here's a pregnant simile, so to speak. Think about schools (or school districts) and technology as young lovers nearing marriage.

In that period of passion, enthusiasm, romance, fears and wedding activity, there is no question that the young couple should (and even might) plan their lives; but do they? And, if they plan, how carefully crafted are those plans? How trustworthy? Aren't plans likely to prove naive, or superficial, or wishful?

Very often, planning for technology in schools (or school districts, or state) is like the planning done by young lovers. Planning may be very earnestly done, but it probably is not done meaningfully. There's so much distraction; and so much to anticipate and think about; and so little experience on which to rely; and so much emphasis on the new couple, not on placing them in the larger context of life. And there's such temptation to ignore troublesome questions, because everyone's expectations are for success. After all, the couple seems made for each other. Also, in technology planning as in courtship, there is a bewildering array of ostensibly expert advice which first-time planners may not be able to sift.

When schools or school districts consider marrying into the technology family, the courtship may be fun but the courtship period turns out to be a misleading guide to the daily living that will follow. The wedding is party-like and requires enormous attention to details; but wedding planning proves unhelpful afterwards as the new couple copes with money, priorities, in-laws, illness and other

features of newly married life. [What happens, for example, when the computer network on which a school or school district comes to rely gets ill, and there's no money or no doctor available to fix it? Blame the planners who during courtship foresaw the value of networks and invested all the available funds in a sophisticated network but didn't consider that a sick network will occur unexpectedly some day and will put a whole school or district into chaos.]

Some school/technology marriages grow unhappy, plans notwithstanding. "You and Me" never becomes "Us," for them. Some engage in abuse, locking their new technology away in a closet and reviving the style of their former singles life. Some even divorce, saying very unlovely things about their recently acquired spouse.

Others muddle through. Still others succeed. Generally, those that do succeed make planning an on-going experience, a part of how the school/technology marriage works. It turns out that planning matters more than "having a plan" matters, just as getting married is not a one-shot deal leading to nirvana, but a commitment to a major approach to life that has to be nurtured.

*MAXIM 1: Planning is more important than having a plan.*

A good school technology plan is a living commitment, not a recipe to be followed without reflection, and not a frozen document to establish a row of accountability hurdles. A good technology plan is more like a mission (like wedding vows) than like a law. It is designed for flexibility; it is designed with the expectation that it is imperfect but will change; it is open.

*MAXIM 2: Don't deify planning. Planning is a good strategy, if done well. But, planning (despite certain attitudes among managers) is not the only strategy to succeed, nor is it the only first place to begin.*

If planning were the only key to successful marriages, there would be even fewer successful marriages. There are

alternatives to beginning a relationship with a plan, and some of these alternatives have led to very useful school/technology marriages. Alternatives may be more risky, but they are not foolhardy. Alternatives include, for example: Following external advice. Mimicking what appear to be others' successful practices. Selecting and trusting a vendor. Starting slow, experimenting, building upon experience, evolving. Entering into a consortium or partnership with other schools or other institutions (rather like a young couple participating in a counseling group). Letting a thousand flowers bloom; entrusting people to select and try the technologies they think they need.

*MAXIM 3: Making technology work for schools is rather like marriage in a way often deeply surprising to young couples: Technology like marriage may be fun, but it is also profoundly consequential. It is important. It is serious. It is not to be entered into lightly, or, if entered into lightly, not to be treated lightly thereafter. Joining technology and schools together, like joining partners together in marriage, tends to change both partners.*

*MAXIM 4: Good advice to young couples and to schools marrying technology: Save for a rainy day; be ready for contingencies; budget. Buy insurance. Seek competent advice. Make friends. Keep learning.*

- **Save for a rainy day:** Don't plan to spend all your money up front. There will be problems and opportunities you'll need or want to address. There will be continuing expenses. Know what you'll do in emergencies; plan for back-up systems. Plan for repairs. Plan for obsolescence and upgrading of equipment. And, especially, plan for students and faculty to outgrow their first efforts.
- **Buy insurance,** literally and figuratively: Anticipate theft of equipment, and insure yourself. Anticipate problems with equipment, and "insure" that competent advice and competent repair or replacement will

be swiftly available. Buy quality, not price. Test uses before investing in wholesale adoption.

- **Seek competent advice:** Seek out not only technically competent people but people who share your desires and directions. Train or hire a staff that helps you use technology well for your purposes.
- **Make friends:** Plan to establish some new relationships that will sustain your efforts. For example, join regional and national associations. Get to know other clients of your vendors.

  Enter into cooperative relationships that offer training, joint purchasing and other special services. Build liaisons to other institutions—phone company, cable company, police, local businesses, universities, consulting firms—that use the same technologies you use or would think about using. Perhaps you can pool experience; perhaps you can help each other. Don't forget, making and nurturing such friendships will cost time and money.
- **Keep learning:** Plan to stay abreast of technology. Neither people nor marriages are static, and when one's spouse is growing and changing, one should pay attention. Because there is no more dynamic field of endeavor in the world today than the creation and uses of electronic technologies, schools and school districts need to stay abreast of developments in technologies and in the use of technologies.

### *Technology is Not Gadgets; Technology is Know-How*

"Technology" is not what most people think. (Just as, after some experience, marriage and spouses turn out to be different from what most people think.)

Educators have fallen into using "technology" as a kind of code word for certain new devices. You will hear people say, "Technology . . . Oh. Do you mean computers?" And so, you will find that "technology planning" is

understood by many to be planning about acquiring and using computers. And because people are accustomed to buying other devices (such as school buses, desks, chalkboards, books), there is a tendency to treat "technology planning" as merely analogous to the purchase of other devices. The planning issues they then focus on are somewhat mechanical; deciding which gadgets and then budgeting, bidding and installing computers.

Similarly, other people (perhaps with more experience, or in a technologically sophisticated community) will think of "technology" as a cornucopia of gadgets. And so "technology planning" may be understood as planning not only for computers but also planning the acquisition and use of television, VCRs, telephone lines, satellite dishes, calculators, videodisc players and multimedia work stations, et al. When people perceive "technology" as a cornucopia of desirable (even magical) gadgets and systems, their planning too often ends with the creation of laundry lists of desirable purchases in which the major decisions are prioritizing which gadgets to acquire first.

It is not unusual (though it is silly) for a school "technology plan" to be merely a shopping list with budget attached of gadgets to be purchased. [This is somewhat like newlyweds whose wish-list for wedding presents constitutes their plans.]

Part of technology planning is about equipment, of course—both the equipment you already have access to as well as that you intend to acquire—and part of technology planning is about uses of equipment. And, as suggested above, some of technology planning should be about such contingencies as avoiding theft, managing timely and efficient repair, and keeping equipment up to date. But all these mechanical considerations are not the heart of the matter.

*MAXIM 5: Good planning for technology use in education is (or should be) foremost a conversation about doing*

*valuable educational things. Technology use is desirable because, used well, electronic devices and systems often enable people to improve what they do. [Just as marriage may be understood as an act to improve the lives of two individuals.] Improvement may mean doing customary educational things better, faster, cheaper, earlier, or more frequently; and improvement may mean doing new educational things that become feasible because of technological resources. It may mean both.*

Equipment, gadgets and systems are technological, not technology. Equipment, gadgets and systems do what they do because of the know-how, the technologies, they employ.

"Technology" is know-how, human understanding about how to do certain things. [Another way to say that: Technology is not what engineers and systems designers make; technology is what engineers and systems designers know.] Technology is the application of knowledge (or "science" or "art" or "craft") to human objectives.

Mankind has had a veritable explosion in know-how in the last several decades [which, as one byproduct, has resulted in a plethora of new equipment, gadgets and systems], and the pace of this acquisition of know-how will not slow in the coming decades [nor will the pace of new equipment, gadgets and systems].

> *For example, the physical technology of miniaturization, honed in the two decades after World War II, coupled with the intellectual technology of mathematical algorithms (honed centuries ago), have since approximately 1970 enabled virtually every person to perform arithmetical tasks at any location at low cost with a high degree of accuracy. Mankind has figured out* ***instant, accurate calculation.*** *One manifestation of this is the gadget we call a hand-held calculator. Add to miniaturization and math algorithms the 20th century developments of electronic technology to communicate information (such as the results of any calculation) rapidly and at will to any site or sites. This trio*

*of technologies manifests itself in the nationwide systems used by retail businesses to track inventory in grocery stores; and it manifests itself in the international systems that enable financial institutions to transfer funds and accounts instantaneously; and it could be applied to regional or national systems for teaching and learning mathematics [as exemplified by some uses today of commercial e-mail networks to support far-flung workgroups of students engaged in common tasks].*

In this example, a *"gadget" orientation* to "technology planning" prompts discussions among educators about whether and if so how, to use calculators in classrooms for the teaching of mathematics. Then people decide "yes" and proceed to purchase, distribute and train people in the use of the chosen "gadget."

In contrast, the *"technology" orientation* prompts educators to think about how to teach mathematics in an era of *instant, accurate calculation*. Educators may settle on use of calculators; or they may settle on using computer software; or they may settle on dial-up access via telephone by students working at home; or on a mix of equipment that satisfies unique instructional settings or unique teacher skills or unique student characteristics. Or they may decide that instant, accurate calculation is inappropriate to teaching mathematics, no matter what gadgets or systems are available. They may even decide that some students will learn some of their mathematics using only the various devices on hand, rather than learning their mathematics only in conventional classroom approaches. [As an aside here, but not to lose a critical point, let me reiterate that last point. The "classroom" is a technology dear to educators. But, as electronic technologies come along, some of them may prove better than the use of classrooms to accomplish educational objectives. This observation, which seems to startle some people, exemplifies what is said below: That technology planning is about change, often fundamental change.]

Generally, the "gadget" orientation leads to picking fixed solutions. [Such as, "in this school, we believe in using calculators."] The gadget orientation almost inevitably leads to educators feeling stuck with a decision and unable to roll along with changes in technology.

Generally, the technology orientation encourages discussions about what to do this year as well as to discussions about how practices may evolve as technologies (and gadgets and systems that use those technologies) evolve. Educators feel that they are in control of their purposes and able to roll along with changes in technology (and with changes in the gadgets in the marketplace).

### *Information and Communications*

*"Technology" is used in this paper to mean know-how, the underlying human understanding of how to do certain things*—such as miniaturization; mathematical calculation; communicating information from place to place, in the above example—which are all extraordinary capabilities honed by the human race in the last 100 years.

Here are some other "technologies" of our time which enlarge the array of possible educational practices; translating information into digital bits, and back again; constructing simulation games; broadcasting information from one site to many; communicating voice or pictures or data or sound from one site to another chosen site; building databases of information, and searching them; telling stories through blending imagery with sound and music.

Most of these are examples of one class of technologies—known today as *information and communications technologies*—that is especially meaningful for education [which is a human institution based on information and communications]. *Technology planning for education should be about using mankind's know-how, especially its information and communications know-how to educate more, better, faster, etc.*

*MAXIM 6: The "technology" that most affects education, teaching, learning and schooling is that subset of human know-how that today commonly is called "information technology" and "communications technology."*

Other important classes of technologies are medical (such as the technology of creating and using serums) and nuclear (such as the technology of splitting sub-atomic particles) and agricultural (such as the technology of dehydrating food).

## Technology Planning and Change

*MAXIM 7: Good technology planning is about adapting to changing know-how, and thus of changing opportunities in the ways people are educated. "Technology" is one major engine of change in this society, in the lives of individuals, and in institutions. The pace of this "engine of change" is faster than the accustomed pace of change in schooling. The fast pace of technological change is one of those "marriage" issues that vexes school people about technology, just as the slow pace of school change is an issue that vexes technology developers about schools.*

Good technology planning acknowledges that changes must occur [which is one reason why school reform initiatives often are sympathetic to uses of technology] and that changes will continue to occur, both in the technologies and their uses, and the ways that schooling works.

Good technology planning is about change. Indeed, it embraces change. If nothing is going to change, forget newer technologies. Keep using the technologies in place, doing the things they enable educators to do. [Or if you must use new technologies, but don't want to change anything, make sure technologies aren't allowed to alter practices. For example, change in "computer literacy" where you teach about the technology, but otherwise don't use it.]

## Technology is for People

*MAXIM 8: Planning to take advantage of technology and technological change should be about people first, not gadgets first. Change is about people. It is people's objectives that technologies serve (or challenge); so that the primary planning questions are about people's objectives and how to achieve them.*

People change when they perceive that change is in their interest, or when they are threatened. Planning for technology-based change means attention to what will be required to cause people to perceive that change is in their interest.

People are politics; politics are people. Technology-based change is imbued with politics. It is about the allocation of power and authority, the establishment and institution of priorities, the expenditure of resources, the rewarding of certain people. It also is about coping with fear, promoting excitement, energizing people and institutions.

Good technology planning pays attention to people—to education professionals, to children and parents, to taxpayers and citizens; it worries about costs and benefits, it worries about taxes and budgets, it worries about beliefs and values, it worries about incentives and roadblocks, and it worries about ways to help people succeed in their individual and collective efforts toward change.

Accordingly, good technology planning must be concerned with training, with the building of understanding, with the growth of comfort, with the incentives to action.

Too often, technology planning is constrained by habit or political considerations to worrying about everything but what's important. Budgets are off limits. Training is some other department's worry. Incentives are part of labor negotiations. Taxes are the legislature's province. Curriculum is a state mandate. And so on.

When people think "technology" is about buying/installing and using gadgets, they ask some questions that they're accustomed to asking about buying/installing and using other things:

- What's in the market?
- What are other people (such as neighboring schools) using?
- How much will all the gadgets cost?
- Can we afford "it?" Where shall we get the money?
- Where shall we put the gadgets as they arrive?
- What do people want?

Because this sort of "planning" process is customary, it is easily engaged in. Moreover, within the limits of the process, this sort of "planning" is doomed to succeed. From it, there eventually will be a document. Something will be budgeted, which probably will not be challenged. Somebody can buy and install "some technology." And, more than likely, some of what gets purchased and installed will get at least some use.

The problem is, this kind of planning—except insofar as dumb luck intervenes—leads to unhappiness and even sometimes to disaster. Why? Because when you start with inadequate assumptions, ask what turn out to be at best superficial questions, and then engage in ill-anticipated situations (that result from not having planned well), people get disillusioned; people get angry; people get diffident; some people even get even. Generally, the gadgets purchased don't satisfy, at least not for long; generally fewer people use them than anticipated for any significant purpose, or even for any insignificant purpose; sooner rather than later people discover the gadgets are inadequate; then comes the political fallout and all the hassles that come from having to explain lackluster outcomes.

Bad technology planning is hamstrung planning. The wrong issues (or, at least, only the easy issues) are

addressed, often by only a subset of the people who should be part of the planning. Beware of a plan written only by people whose job it is to implement technology. The best plans are crafted by the people—students, teachers, parents, community members—who have various concerns for the outcome, aided by people who know what changes technology can support.

### *School is a Technological Institution*

*MAXIM 9: Schools and school districts are technological inventions, created through decades of political and professional processes. Developed in earlier eras, schools quite successfully take advantage of a mix of technologies (and gadgets reflecting those technologies, from chalkboards and textbooks to ringing bells and school buses) that today are no longer new, but continue to work nearly as well as ever.*

Technology planning is about changing the mix of technologies that are "school." Older and newer technologies compete, often, for glory, resources and opportunities. Thus, technology planning is about fundamental institutional changes.

"School" is a sophisticated, proven, blend of technologies for education. It can be understood as a system that has deep roots in beliefs about information [e.g., information is best found through reading books and listening to knowledgeable adults] and in beliefs about communications [e.g., a single room populated with age-graded youngsters is the best environment for youngsters to get information from books and hear from knowledgeable adults].

Among the many reasons that schools adapt slowly and plan poorly for new technologies, a central reason is that conducting school with a different mix of technologies would change the society of a school, the roles of individuals in schools, and the institution of school itself.

The nature of these changes often is unclear and may seem mysterious, fearsome, unpalatable, impolitic, or otherwise difficult for many educators and their clientele to conceive of and to execute. [Moreover, often those who push hardest for newer technologies and gadgets are unaware that these are the problems that other people think about first when technology is mentioned.]

Neither educators nor others in this society have yet articulated broadly for educators, their clientele, and for the larger society, what school based upon a new (and presumably better) mix of technologies would be like.

## School in a Technological Environment

*MAXIM 10: The technology for education is everywhere. Use it.*

It seems to catch most educators, the first time it is pointed out to them, dumbfounded. In America today, something like 99 percent of American homes (by whatever definition) have at least one color TV, of which more than 80 percent are attached to VCRs. Forty-five percent of youngsters, across all social strata (however measured) use "game machines" [which are small computers, carefully described in other ways] and nearly one-third of students have a personal computer available to them at home. Two out of three of those TV households have connected their TVs to cable television systems; another significant group use satellite dishes to access the same channels of information available on cable. Approximately 98 percent of American homes have at least one personal telephone. More than half of these are connected to answering devices and a sizeable minority are connected to FAX machines. Similarly, radio, film, audio cassettes and players and recorders, phonographs with vinyl discs and CD players with smaller plastic discs are common.

In addition, most communities use over-the-air signals (beepers, pagers, cellular phones, radio, etc.) for govern-

mental communications. Many localized businesses do also. Most workers with even the most rudimentary need to write or cipher have routine access to machines (usually computers) for word processing and some kind of calculating capability (from hand-held calculators to computerized spreadsheets). Most information useful to businesses is kept in some kind of electronic storage, and in many businesses—especially the largest—that data is managed centrally to serve thousands of users on demand.

Yet, when school people sit down to plan for technology, virtually all of these systems, all of this installed base, all of this shared commonplace experience is not even on the table. Instead, school people tend to plan only for practices and for systems that will be used inside the buildings they operate [and usually inside the usual constraints of school operations—calendars, classroom configurations, etc.]. In short, most educators hold a slightly impoverished view of the technology that they can put to educational use and of the uses to which the technologies they like can be put.

If technology planning for education begins with the available resources upon which youngsters, teachers and other educators may occasionally draw, technology will have a major impact on formal education even if no new devices are put into school buildings.

For the millions of people who are now connected to various electronic networks—from cable TV which makes dozens of genres of imagery and sound available on demand to "on-line" electronic mail and bulletin boards which make quick and inexpensive verbal and gaming communication feasible community-wide and world-wide, it is generally understood (but rarely articulated by educators) that (to paraphrase a bard) all the world's a school. [This is the obverse of the underlying assumption about most schools; that each school is a world.]

## The Vision Thing

*MAXIM 11: Vision lends vitality, imagination, and ambition to planning. Good plans for technology in schools and school districts are grounded in convictions about the future state of education, including convictions about the most desirable mixes of technologies and what their impact will be.*

Without expressing such a vision, preserving the status quo is the first order of business, and shopping-list planning is much more likely than meaningful planning. Without vision, it is easier to produce a document called a plan than it is to plan; many a technology planning effort is charged [and content] to *write* a plan, not *to* plan. The existence of a document called a "plan" or a committee called a "planning committee" is not sufficient to demonstrate that a school district is planning for technology. Without vision, people find it safe to be cautious, and many a technology plan is kept small-scale, becomes no one's cause or priority, and results in negligible impact on the larger school "mix."

The central technology planning question is: How can people use information and communications (and, therefore, information and communications technologies) to educate, teach or learn better than they do now? Better? Absolutely. And if one can articulate what it means to be "better," then the crafting of a vision to guide planning has begun.

As this paper is being written, the Mecklenburger Group (a consortium of independent consultants) and the University of Oklahoma are working not only to articulate a vision for the future state of schools that educators and policy makers can use, but also to plan through conferences, publications and other means to advance a conversation in the country about such a vision. More information about our "Global Village Schools" vision will be available at a later date.

## *Conclusion*

The information and communications technologies that have reached enormous scale (such as radio and music recordings, TV, film, computing, telephone networks) in this century are curiously absent (or nearly so) from schools. Moreover, they are curiously absent from the life of the mind promoted by schools. Finally, those who are designing next generation uses of these and other technologies generally are not thinking hard about the implications of these technologies for education (nor are educators thinking hard about this).

When interest is expressed, from time to time, one for the other, it is still generally more like "puppy love" than like lifelong commitment. Even intimate affairs don't seem to last (although the affair between educators and the Apple II computer seemed quite steady for several years, but they're breaking up finally). Accordingly, much that passes today for "technology planning" in schools and districts will prove as giddy and ephemeral as the styles of young courtship. "When will they grow up?" "They're just dating, after all; too soon for real plans." "It's a phase they're going through." "Why don't they see the trouble they could get into?" And so on.

What is clear, though is that these youngsters and their silly ways will one day (for some, very soon; for others, not for awhile yet) give way to serious relationships. Education and technology will not forever just flirt and experiment. They will marry.

Who will propose to whom? Where will the new couple live? How will the new couple pay its bills? Who will be in charge? Will they both work? Will the couple serve their community well? Will they be happy? Will they fight? Will they stay together?

# *"BellSouth TechKNOWLEDGEy '93: Pathways to Progress" Conference*

*August 5-6, 1993*

## *The Key Elements of Effective State Educational Technology Planning*

***This document is a collaborative effort among BellSouth, the Southern Regional Education Board, and three experienced state educational technology planners. Its purpose is to guide the efforts of those involved in state educational technology planning.***

BellSouth TechKNOWLEDGEy '93 Pathways to Progress

**TABLE OF CONTENTS**


**60**

*Introduction*

**61**

*Stage One: Preparing*

**62**

*Strategic Vision*

**63**

*Goals and Objectives*

**64**

*Needs Assessment*

**65**

*Scope*

**65**

*Political Issues*

**66**

*Defining Stakeholders*

**67**

*Organizational Structure*

**68**

*Model Schools*

**69**

*Funding*

**69**

*Equity*

**70**

*Staff Development*

**71**

*Vendors and Outside Consultants*

**72**

*Stage Two: Writing*

**73**

*Stage Three: Evaluating*

**74**

*Summary: Tips From the Experts*

**76**

*Checklist: Does Your Plan . . .*

**77**

*Acknowledgements*

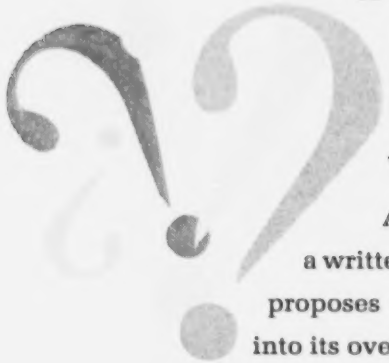
**78**

*List of Resources*

# *Introduction*

The world is changing. What our children must learn to become productive members of society, both today and in the 21st century, differs vastly — not only from what our parents needed to know, but also from what we need to know. Today, more than ever before, educators are looking for new tools that will enable them to keep pace with change and teach more effectively. Technology is one such tool.

Since the integration of technology and education is relatively new, educators seldom have access to a strategic planning guide. To fill this void, BellSouth and the Southern Regional Education Board have joined forces to produce a document that will serve as a guide to education technology planning. It is meant to provoke thought and identify questions — not to specifically define planning activities. You are the best judge of what will succeed in your state and what will not.



A state educational technology plan is a written strategy that outlines the way a state proposes to integrate educational technology into its overall education goals. It is not merely a "vision statement." It is a call to action.

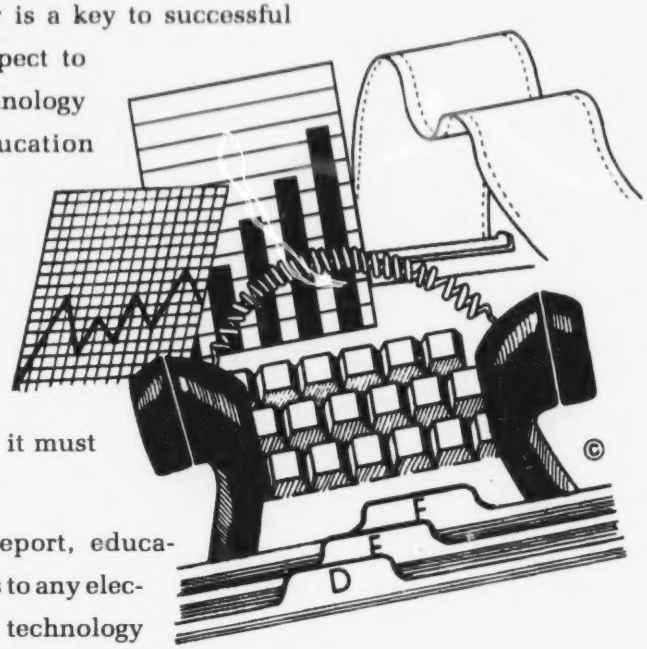
Planning is critical if technology is to have a positive impact on education, but the job of technology planning is becoming more and more challenging. How can planners be effective in a constantly changing environment? What variables should be considered when developing an educational technology plan? What problems have planners faced in the past? How were these problems overcome? What barriers are planners likely to face in the future?

These are the questions we sought to answer when we asked three experienced state educational technology

planners to help define key components of educational technology planning. Their ideas — arranged into the categories of Preparing, Writing, and Evaluating — form the foundation for this report.

This guide has been prepared primarily for those involved in state educational technology planning. It also should be helpful to anyone with an interest in — or influence over — the future development of education and technology.

It is important that you remember throughout this process that flexibility is a key to successful planning. You can expect to see changes in the technology industry and the education environment. Therefore, to remain effective your plan must have the built-in flexibility to change with the complex environment in which it must function.




Throughout this report, educational technology refers to any electronic and information technology used to support or aid teaching and learning. This might include, for example, a fiber-optic-based Distance Learning network, instructional courseware, or a telephone in a teacher's classroom.

### *STAGE ONE: PREPARING*

The preparation for planning can be as important as planning itself. A major mistake is to start the planning process before all the major ingredients are in place. No ingredient is more critical than the strategic vision.

***STRATEGIC VISION: What is your vision, how will you achieve it, and how will you paint the picture for the public?***

The use of technology in education is foreign to most of the public, including some public officials who have the power to approve or reject your plan. Your ability to create a vision and communicate that vision to the public will be important. You must show the public what education will look like after the technology is in place. You must describe to the public, in terms easily understood, the new educational environment that will result from the integration of technology and education. This is particularly important if you intend to use technology as a major component of a school restructuring effort.

*Some of the more common questions you will hear from the public include:*

- What will education look like?
- How will education in the state change because of your plan? What will be different?
- How will education remain the same after your plan is implemented?
- How will the school environment change? (For example, what will the school day or year now involve?)
- How is technology going to affect the education of individual children?
- How will you measure student achievement?
- How will technology affect the role of teachers?
- How will stakeholders be affected?
- How will educational technology help improve education in the state?
- How much will your plan cost, and is it worth the expense?

**HINT**

*The use of graphics can be of significant value when communicating your vision to the public.*

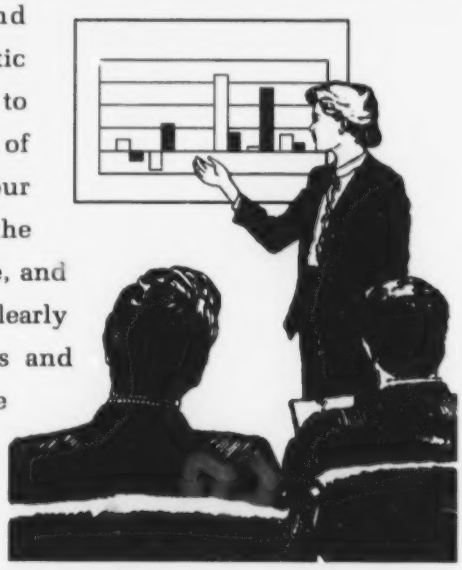
- How does the plan build on what already exists?
- What research exists to support the plan?
- How will you prove at some point in the future that you have done what you plan to do?

A good public relations campaign, including a strategic media plan, will help you achieve your vision. Public forums, such as town meetings and technology demonstrations, can be beneficial parts of this campaign. Activities at these meetings could differ according to the interests of the region of the state involved.

Each time you expose the public to the technology and your vision for it, you will come one step closer to gaining support and understanding. As one state planner put it, "support for the plan must begin with the grassroots."

### *GOALS AND OBJECTIVES: What do you hope to accomplish through the use of educational technology in your state?*

One important task in the planning process is to clearly define your goals and objectives for educational technology. What you plan to accomplish will be limited by such factors as funding and human resources. You should consider these and other constraints when establishing your goals and objectives. Unrealistic promises can lead to doubts and a loss of support among your staff, teachers in the state, the legislature, and the voting public. If clearly defined, your goals and objectives will drive your remaining planning decisions.



**HINT:**

*Technology is most effective when it is used to fulfill an educational need or objective.*

*Consider the following questions when establishing goals and objectives:*

- How will technology support your state's educational goals?
- What do you want the state educational technology plan to do?
- What can you realistically hope to accomplish?
- What are your short-term and long-term goals?
- What are your instructional objectives?
- What are your administrative objectives?
- How will you link instructional and administrative objectives?
- What is your evaluation plan?
- What are your staffing needs?

Goals and objectives need to be defined not only for the plan itself, but also for each of its sub-components. For example, as a sub-component of your state plan, your staff development program will require a clear set of goals.

Closely tied to your goals and objectives will be the evaluation criteria used to measure whether established goals and objectives have been met. For this reason, it is important to begin planning for the evaluation process while you are defining your goals and objectives. Of primary consideration is how you will know that you have reached your objectives. The use of an independent third party can help lend credibility to the evaluation process. (The evaluation process is discussed more fully in Stage Three of this report.)

### *NEEDS ASSESSMENT: What is your state's current status?*

A review of your state's current educational and technology status may help you determine your needs and focus your planning efforts. There are several things to consider when assessing your needs. These are:

- The varying technological sophistication of your state's school districts;
- The inventory of existing technologies and how they are being used;
- The ability and availability of staff to help you plan;
- The expertise of school district staffs to plan for educational technology;
- The impact state laws and mandates may have on your educational technology plan.

A review of existing state plans can be very helpful. The Southern Regional Education Board keeps a file of these and can help you obtain copies.

### *SCOPE: What will your plan cover?*

A clearly defined scope for the plan will help eliminate unrealistic expectations. It is helpful to define what the plan will, and will not, cover. Your answers to the following questions may help define your plan's scope:

- Will the plan cover both instructional and administrative technologies?
- What technologies are to be covered by the plan?
- Will you ask school districts to draft their own technology plan? If so, will you provide school districts with guidelines for writing these plans?
- Should your plan define the technology standards for old as well as new facilities? How about old technologies?

### *POLITICAL ISSUES: How will you handle politics in your state?*

The potential cost of not investing in technology is great. Educational technology can be a significant investment, but it is one we must make without delay. Technology decisions will be a high profile issue in your state, and politics will play a key role throughout the planning

**HINT:**

*It is important to remember that educational technology is more than computers. Many technologies, such as telecommunications technologies, satellite networks, videodisc players, and closed-circuit cable TV systems could meet your needs. Have you addressed all technologies?*

**HINT:**

*Depending on your situation, it may be wise to plan simultaneously for instructional and administrative technologies, since these systems are becoming increasingly interdependent. For example, in an integrated system, these technologies can be used to efficiently produce accountability reports.*

process — from the selection of a planning committee to the method of distributing funds. Your knowledge of political dynamics can help you find ways to develop broad-based support for your plan. According to the experts, political considerations may influence:

- Your identification, selection, and involvement of stakeholders;
- Your methods for involving the public;
- The amount of freedom you grant school districts;
- Whether to use model schools.

### *DEFINING STAKEHOLDERS: Who has a stake in educational technology planning?*

The identification of stakeholders is a major consideration for the educational technology planner. Stakeholders are people who may benefit from or be impacted by your plan's success. Stakeholders can either be a great source of support or a roadblock to progress. Experts agree that there are three things to remember when dealing with stakeholders — identify, inform, and involve.

*When identifying stakeholders ask yourself:*

- Who has the power to accept or reject the plan?
- Who can influence public acceptance of the plan?
- Who can help gain support for the plan?

*There are many categories of stakeholders in a state. These may include:*

- teachers
- parents
- governor
- higher education leaders
- libraries and museums
- chambers of commerce

- key legislators
- business leaders
- students (K - adult)
- educational unions and associations
- school board members
- special interest groups
- school administrators
- media personnel

Keeping stakeholders informed is critical to maintaining their support, whether you choose to communicate through meetings, newsletters, or personal correspondence. You may again find that a carefully planned public relations effort will be beneficial.

There are many ways to invite stakeholder participation. Their level of involvement may depend on personal interests, time limitations, and technical expertise. Whether a stakeholder serves on an advisory group, co-chairs a task force, or prefers simply to be kept informed of your progress, you must capitalize on his or her individual strengths to gain broader support for the plan.

### *ORGANIZATIONAL STRUCTURE: How will you organize those involved in the planning?*

State educational technology planning can be a very complex task. You cannot plan in a vacuum, and you will need assistance. You must decide how best to manage and organize this assistance. There are many different alternatives — a large structure with several sub-committees and task groups or a small structure with one planning committee. For example, some states have used an existing state agency such as the state department of education to coordinate planning. Other states have formed a "Blue Ribbon Committee" made up of influential and respected citizens. Still others have established multiple advisory groups representing major stakeholders in the state to assist a core committee.

Different types of organizational structures have their merits. It is your challenge to choose the one that will be

most effective and productive. When designing an organizational structure you may want to consider:

- How will you gain stakeholder input?
- How will you keep the organizational structure nonpartisan?
- How will individuals be selected and what will their responsibilities be?
- What are the tasks you want to carry out?
- How will the input of all those involved be brought together?

***MODEL SCHOOLS: Will you formally recognize and support model schools?***

Many state plans mention model school programs, but use these programs in different ways. Experience tells us that in every state, some schools will be more successful with educational technology than others. So the question is not whether you will have model schools — but whether you will formally recognize and support model schools in your state. In some states, model schools have proven to be a good resource for training staff and showcasing successes to the public. If your model school program is not formalized, you may consider public recognition and awards as a means of identifying successful practices.

Choosing to formally institute a model school program in your state involves many issues. You may want to consider the following:

- What will you model?
- How many models will you have in the state? (You may consider one per region.)
- Will you have models for elementary, middle, and secondary levels?
- How will you choose the model schools? Will you use a competitive grant process?
- How will you provide for easy accessibility to model schools?
- How will you support model schools?
- What is the cost benefit of model schools?

### *FUNDING: How and when will the plan be funded?*

Funding is critical to the success of your plan. States use different means, such as lotteries and taxes, to fund educational technology investments. However, it is important to consider not only how the plan will be funded, but when it will be funded. Your plan will most likely progress in phases. Without the funding to complete each phase on time, the plan could be stalled and public support lessened. For this reason, it will be essential to determine the funding schedule.

### *EQUITY: How will you promote equity, both in planning for educational technology and integrating it into education in your state?*

Equity is a critical consideration for the state educational technology planner. It can be defined in many ways, depending on your state's current status and objectives for education. You may, for example, define equity in terms of equal educational outcomes for students in your state's school districts. You might also define it in terms of an

equal distribution of technology funds. However it is defined, equity must be considered when planning.

More and more frequently, states are investing in technology in response to equity lawsuits. Technology has the potential to promote equitable access and opportunity. For example, state networks can give all students access to the same resources, and Distance Learning can offer all students the opportunity to take the same classes. Without proper planning, however, investments in technology can further separate the "haves" and "have nots" in your state.

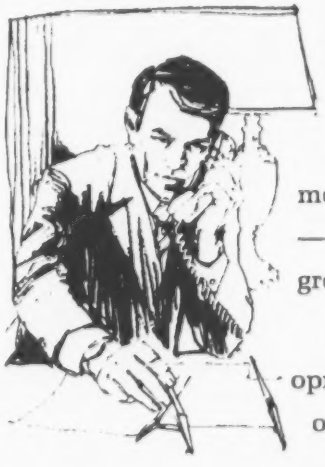
*You may want to consider:*

- How will funding be distributed? Will it be on a competitive basis?
- How will you help less advantaged school districts plan for and use technology?
- Will you have to allocate additional staff time for assistance?
- Do you hope to establish a standard minimal technology base in all schools?
- What will you do about those school districts that have already invested in technology?

**HINT:**

*Teachers must not only know how to use various technologies, but also must have a clear understanding of how technology changes the learning process. Staff development should be used to help teachers develop teaching strategies and to explore the impact technology will have on their teaching methods.*

### *STAFF DEVELOPMENT: What kinds of training considerations are needed for faculty and staff?*



Staff's ability and willingness to use technology depends on their familiarity and level of comfort with it. Staff development implies more than training — it also refers to professional growth.

States must plan for staff development. The educational technology planner must carefully

consider how best to train staff to use technology effectively and how to provide staff with the guidance they need to adjust to a changing educational environment. Experience has shown that many factors make this task difficult, including the lack of time, money, motivation, and the capacity to provide for ongoing technical assistance within the schools.

*When planning for staff's professional growth, you will need to address the following questions:*

- Must the state's teacher evaluation criteria be updated to support the use of educational technology?
- How can teachers be given the time they need to prepare to use technology?
- Is there a medium that encourages peer communication among staff in your state?
- Would a state network that allows peers to exchange ideas be beneficial?
- How will technology impact education?
- How will the addition of technology change the way students are taught?

*Experts offer the following suggestions to make training more effective:*

- Train staff in their own building, on their own equipment, to meet their own needs
- Schedule most training when technology is in place
- Plan for training to be continuous

**HINT:**

*Administrators will need training as well. With the addition of new technologies, administrators will need to know the pros and cons of various technologies, how to determine whether desired learning outcomes have been reached, and how to use technology to run their buildings.*

### *Vendors and Outside Consultants: How can you establish a beneficial relationship with vendors and consultants?*

Vendors and consultants can help to ensure the success of your plan. However, before involving vendors and consultants in the planning process, decide what you want them to do. If beneficial relationships are established, vendors and consultants can be good sources of

helpful information and advice, while ultimate planning decisions are made by the state. Ask yourself these questions before involving vendors and consultants:

- How will you evaluate hardware, software, and staff development?
- How will you deal with maintenance and replacement issues?
- Are state contracts and procurement a good strategy for your state, or would local level procurement be better?
- Would volume purchasing reduce your costs?
- Would leasing some items be beneficial?

### *STAGE TWO: WRITING*

There is no one way to write a plan. It will require much time and effort. The plan will be your principle means of communicating educational technology goals to decision makers and the public. For this reason, it should be organized and clear. Diagrams and illustrations can be used to effectively explain complex concepts not commonly understood by the general public.

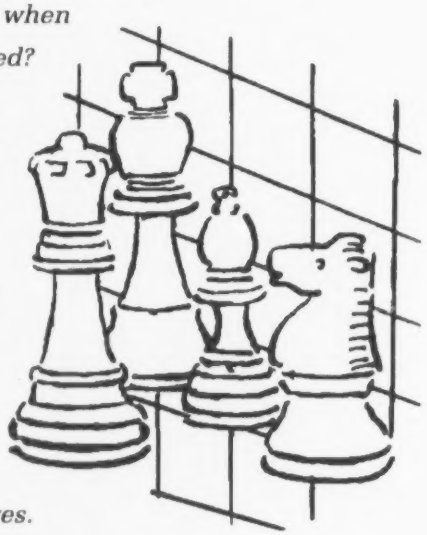
Experts have identified several key elements generally included in educational technology plans:

***Vision:*** *The picture you will paint for the public. What will the classroom look like when technology has been introduced?*

***Mission Statement:*** *An outline of challenges and an explanation of intended actions.*

***Goals and Objectives:*** *An identification of your expectations.*

***Strategy:*** *A statement of how you plan to accomplish your goals and objectives.*



***Scope:*** *The limits of your plan.*

***Training and Staffing Requirements:*** *A description of the human resources and training necessary to successfully implement your plan.*

***Evaluation Criteria:*** *Tools and techniques for judging the success of your plan.*

***Technical Standards:*** *The minimum requirements for each technology to be purchased.*

***Cost Estimates:*** *A forecast of your plan's cost.*

***Timeline:*** *A schedule outlining the steps of the plan with timetables for completion.*

***Glossary of Terms:*** *Definitions of technical jargon.*

***Upgrading, Maintenance, and Obsolescence Strategies:*** *These strategies may be developed as a result of contract negotiations with vendors. For example, a replacement schedule forecasting anticipated replacements for outmoded hardware might be included.*

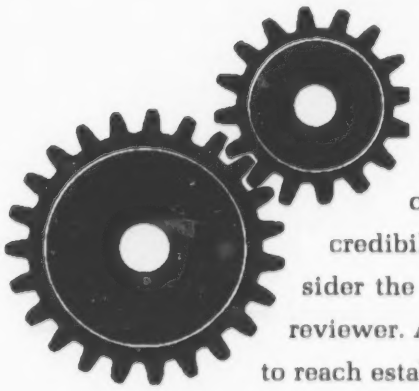
**HINT:**

*Some additional sections that have been successfully added to some state plans include:*

- ***Answers to Frequently Asked Questions***
- ***A Directory of Contact Phone Numbers***

## STAGE THREE: EVALUATING

### *Evaluation: How will you judge the effectiveness of your plan?*



A regularly scheduled evaluation of the plan, at least every 12 months, can help you monitor successes and remain on target. To lend credibility to the evaluation, you may consider the use of an independent third-party reviewer. A major concern is the plan's ability to reach established objectives and goals. Given changes in the education environment and new technological developments, you may find it necessary to change your plan periodically. Thus, you may want to consider how changes to the plan can be made and who can make and authorize these changes.

As mentioned in Stage One of this report, your evaluation criteria should be established simultaneously with your goals and objectives. This will help significantly when you begin measuring your plan's successes. Establishing evaluation criteria before evaluating the plan not only leads to a more accurate assessment of the plan's effectiveness, but is also another way to achieve credibility with the public, since they will know up front what the plan is intended to achieve.

For your evaluation to be effective, you will need a way to collect the data and information that you need. You may, for example, want to collect status reports from each school district or from each school. This will require a certain degree of organization and staff time. You must plan accordingly.

An important product of any evaluation is learning under what conditions different technologies work best. This will be extremely helpful in planning staff development efforts and assisting districts in their planning efforts.

## *SUMMARY: TIPS FROM THE EXPERTS*

The purpose of this document has been to guide the efforts of those involved in state educational technology planning. It has done its job if you were: Forced to question the way you plan; stimulated to think of something you had not previously considered; or motivated to become more actively involved in educational technology planning in your state.

*Finally, state educational technology planning experts offer the following advice:*

- Be prepared when you face the legislature. (Know where you have been; where you plan to go; and what is happening in other states.)
- To further illustrate its potential, use technology to present your plan, but do not let technology become the focus of your presentation.

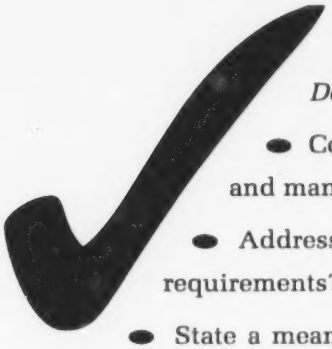
- Expect to make changes to your plan. (Build in flexibility and be prepared to make many tradeoffs before reaching your objectives.)
- Be creative when seeking solutions to problems.
- Consider all your options — not just the first or most apparent.
- Borrow from what has been done before. (For example, review the plans of other states and take advantage of commercially developed planning instruments, etc. Consult the attached List of Resources for such products.)
- Plan for unexpected developments. (Always be ready with a Plan B.)
- Use graphics to illustrate concepts in your plan.
- Showcase and build upon your successes.
- Involve all stakeholders as appropriate.
- Plan with the future in mind. (Rapid changes in the information industry may require you to incorporate a completely new technology into the plan.)
- Use pilots only if you know you can be successful.
- Build training and funding into a realistic timeline.
- When beneficial, seek partners from industry and higher education.
- Present your plan to the legislature in segments if it has a better chance of approval than if presented as a whole. (Some states have had their entire educational technology initiative "wiped out" by the legislature because one element was not acceptable. If it had been presented in pieces, the other parts of the plan might have been approved.)
- Consider all sources of funding as resources for educational technology.
- Plan for maintenance and upgrading of obsolete equipment and materials.

**HINT:**

*It is important to remember that technology needs to be in place before training can begin. If individuals are trained before equipment is installed, chances are the training could be forgotten.*

**HINT:**

*Keeping higher education and industry involved in or aware of your plan can prove very helpful. This interaction could lead to collaborative efforts benefiting your state in the future. For example, working with colleges of education may help them better prepare future teachers to meet your state's expectations for teaching with technology.*



## CHECKLIST

*Does Your Plan ...*

- Coincide with state educational goals and mandates?
- Address the issue of state accountability requirements?
- State a means for using technology for student achievement and reports of progress?
- Address both instructional and administrative technology?
- Designate a central authority for its implementation and evaluation?
- Define the school and district roles in making the plan work?
- Include a staff training and development component?
- Have a mechanism built in for change?
- Show a link between your educational objectives and technology?
- Address equity?
- Address upgrades, obsolescence, and maintenance?
- Address the need for a technology facilitator/team in the schools?
- Allow for an ongoing review and reporting process?
- Establish a reasonable timeline and scope?

## *Acknowledgments*

*We extend our sincere gratitude to the state educational technology planners who gave so graciously of their time and their knowledge. Their commitment to the future of education and willingness to share information freely with others is an inspiration.*

- ***Dave Brittain,*** Bureau Chief, Bureau of Educational Technology, Florida Department of Education
- ***Elsie Brumback,*** Director, Media and Technology, North Carolina Department of Public Instruction
- ***Brenda Williams,*** Assistant Director, Office of Technology and Information Systems, West Virginia Department of Education

*Information for this report was gathered during a day and a half meeting at Callaway Gardens, Georgia, with the three state planners and representatives from both BellSouth and the Southern Regional Education Board.*

## *Special thanks to:*

- ***Gary Calfee,*** Director, Office of Educational Technology, Tennessee Department of Education
- ***Geoff Fletcher,*** Associate Commissioner, Technology Applications, the Texas Education Agency

# *List of Resources*

## PLANNING RESOURCES:


Barker, Bruce O. *The Distance Education Handbook: An Administrator's Guide for Rural and Remote Schools.* America: ERIC Clearinghouse on Rural Educational And Small Schools, 1992.

Council of Chief State School Officers. *Improving Student Performance Through Learning Technologies: Policy Statement 1991.* Washington, DC: CCSSO, 1992.

Hezel Associates. *Educational Telecommunications: The State-by-State Analysis 1993.* America: Hezel Associates, 1993.

National Education Association. *Educational Telecommunications: Final Report of the NEA Committee on Educational Telecommunications.* America: NEA, 1993.

Sheehan, Bernard S. "Planning for Information Technology." *New Dimensions for Institutional Research* Sept. 1982: 105-116.


## COMMERCIALLY DEVELOPED TOOLS:


*"Teaching, Learning & Technology:* A Planning Guide," Apple Computer, Inc. 1991. (multimedia planning kit)

*K-12 Technology Planning Tool.* EduQuest. 1992. (multimedia planning kit)


## ORGANIZATIONS AND CONTACTS:

- **Agency for Instructional Technology**
  Box A, Bloomington, IN 47402-0120
  Phone: (812) 339-2203 FAX: (812) 333-4218
- **Association of College and University Telecommunications Administrators (ACUTA)**
  Lexington Financial Center, Suite 2420, Lexington, KY 40507
  Phone: (606) 252-2882
- **Center for Technology in Education**
  Bank Street College of Education,
  610 West 112th Street, New York, NY 10025
- **CAUSE, the Association for the Management of Information Technology in Higher Education**
  4840 Pearl East Circle, Suite 302 E, Boulder, CO 80301-6114
  Phone: (303) 449-4430 FAX: (303) 440-0461
- **Council of Chief State School Offficers (CCSSO)**
  Contact: Frank Withrow
  One Massachusetts Avenue, NW, Suite 700
  Washington, DC 20001
  Phone: (202) 408-5505
- **Hezel Associates,** Contact: Dick Hezel
  1201 East Fayette Street, Syracuse, NY 13210
  Phone: (315) 422-3512 FAX: (315) 422-3513

- **Institute for Academic Technology (IAT)**
  P.O. Box 12017, Research Triangle Park, NC 27709-2017
  Phone: (919) 560-5031 FAX: (919) 560-5047
- **Institute for the Transfer of Technology to Education (ITTE)**
  Contact: Ann Flynn
  National School Boards Association, 1680 Duke Street
  Alexandria, VA 22314
  Phone: (703) 838-6794 FAX: (703) 683-7590
- **International Society for Technology in Education (ISTE)**
  P.O. Box 4437, Alexandria, VA 22303
  Phone: (703) 351-5243 FAX: (703) 351-5254
- **International University Consortium for Telecommunications and Learning**
  University of Maryland
  University College, University Boulevard at Adelphi Road
  College Park, MD 20742-1612
  Phone: (301) 985-7811
- **Mecklenburger Group,** Contact: Jim Mecklenburger.
  P.O. Box 22075, Alexandria, VA 22304
  Phone: (703) 823-6853 FAX: (703) 823-6819
- **National Center for Technology Planning (NCTP)**
  Contact: Dr. Larry Anderson
  Mississippi State University
  Drawer NU, Mississippi State, MS 39762
  Voice: (601) 325-2281 FAX: (601) 325-7599
  E-Mail: Isa1@ra.msstate.edu
- **Software Publishers Association:**
  1730 M Street NW, Suite 700, Washington, DC 20036
  Phone: (202) 452-1600
- **Southern Regional Education Board**
  Contact: Susan Jones
  592 Tenth Street, NW, Atlanta, GA 30318-5790
  Phone: (404) 875-9211 FAX: (404) 872-1477

## DOCUMENTS OF INTEREST:


Clinton, William J., and Gore, Albert, Jr. *Technology for America's Economic Growth, A New Direction to Build Economic Strength*. Washington: GPO, 1993.

Dunham, Alden E. *Educational Reform: The Critical Role of Information Technology, Occasional Paper #14*. Washington, DC: Institute for Educational Leadership, 1992.

HEIRA, ed. "What Presidents Should Know --- About the Integration of Information Technologies on Campus." *Background Papers for HEIRAlliance Executive Strategies Report #1*. HEIRA, 1992.

Okey, James; Brittain, David; Hasselbring, Ted; and Uhlig, George. *Uses of Technology in Education: A Task Force Report to the BellSouth Foundation*. Atlanta: BellSouth Foundation, 1991.

Sheingold, Karen, and Hadley, Martha. *Accomplished Teachers: Integrating Computers into Classroom Practice*. New York: Center for Technology in Education, 1990.

Software Publishers Association. *Report on the Effectiveness of Microcomputers in Schools*. Washington, DC: SPA, 1990.

Southern Regional Education Board. *A Proposal for Educational Technology Partnerships to Help Reach America's Education Goals*. Atlanta: SREB, 1992.

Technology & Learning Editors. "Update: The Latest Technology Trends in the Schools." *Technology & Learning* Feb. 1993: 28-32.

U.S. Congress. Office of Technology Assessment. *Linking for Learning: A New Course for Education*. 101st Cong. 1989.

Warger, Cynthia, ed. *Technology in Today's Schools*. America: Association for Supervision and Curriculum Development, 1990.


## RELEVANT REGULATION (PAST, PENDING):


U.S. Congress. Senate. Committee on Commerce, Science, and Transportation. *High Performance Computing Act of 1991*. 102d Cong., 1st sess., 1991. S. 272.

U.S. Congress. Senate. Committee on Labor and Human Resources. *Technology for Education Act of 1993*. 103d Cong., 1st sess., 1993. S. 1040.

SERVE OFFICES

P.O. Box 5367
Greensboro, NC 27435
800-755-3277
919-334-3211

345 South Magnolia Drive
Suite D-23
Tallahassee, FL 32301-2950
800-352-6001
904-922-2300

41 Marietta Street NW
Suite 1000
Atlanta, GA 30303
800-659-3204
404-577-7737

Delta State University
P.O. Box 3183
Cleveland, MS 38733
800-326-4548
601-846-4384

BEST COPY AVAILABLE

SERVE OFFICES

P.O. Box 5367
Greensboro, NC 27435
800-755-3277
919-334-3211

345 South Magnolia Drive
Suite D-23
Tallahassee, FL 32301-2950
800-352-6001
904-922-2300

41 Marietta Street NW
Suite 1000
Atlanta, GA 30303
800-659-3204
404-577-7737

Delta State University
P.O. Box 3183
Cleveland, MS 38733
800-326-4548
601-846-4384

# FUTURE PLANS

## Making the Most of Technology in the Classroom

# DISCUSSION GUIDE

SERVE

*SouthEastern Regional Vision for Education*



BEST COPY AVAILABLE

# FUTURE PLANS

## Making the Most of Technology in the Classroom

### Introduction

For a generation of students raised on television and video games, technology will need to play a crucial role in their learning. Understanding how to best use technology is the key to successful outcomes in the classroom for students, teachers, and administrators. The key to successful implementation of educational technology in the classroom is systematic and effective planning.

***FUTURE PLANS***, hosted by Tracey Bailey, 1993 National Teacher of the Year, provides an overview of a three-stage planning process with highlights from a seven-part teleconference series, ***Using Technology to Improve Teaching and Learning***. School, local, state, and national education leaders discuss important issues that impact the technology planning process as they share their experiences in implementing successful instructional technology programs in the Southeast.

This discussion guide is designed to provide assistance to groups as they view the videotape, FUTURE PLANS, and to enhance their interactive learning experience. Group leaders, presenters, and professional development staff may use this videotape to introduce technology planning to a broad range of participants, including faculty, parents, work teams, and business partners. With the inclusion of practice activities and a follow-up discussion, this program will serve as the basis for a 45-minute to 2-hour session.

## PROGRAM HIGHLIGHTS

- ✔ a three-stage planning process
- ✔ key elements for successful technology planning
- ✔ an examination of outcome-based decision making
- ✔ ways to avoid pitfalls in the planning process

## Opening Questions

***What local, district or state goals should be considered in planning for the use of technology in schools?***

***What are the desired learning outcomes for students and how can their achievement be supported or enhanced by the use of technology?***

***How will your team assess the needs of faculty, students, and administrators at your school(s)?***

- How should data be collected?
- Who should participate in the needs assessment?
- How will data be analyzed and by whom?
- How will the results be disseminated and to whom?

***Where can your team seek funding and support?***

- What state, local, and school funding sources can be identified?
- How can business partners be approached and involved?
- How can parents be involved?
- What strategies for fund raising have been used successfully by other schools and districts?

***How can ALL staff be trained to use technology effectively?***

- Who should be trained, on which equipment or program, and by whom?
- How does technology fit with other staff development activities?
- Who is responsible for identifying and organizing appropriate development programs?
- How will training be funded?

***How can the team assure equitable and fair distribution of equipment and resources within and among schools?***

- Where will equipment be placed?
- How will access be provided?
- How will hardware, software, and program content be maintained and updated?

## Stage One: Preparation

**ACTIVITY:**
Brainstorm and chart a list for each of the following questions.

### *Factors to Consider*

- What are all the factors that must be considered by the team to prepare for the planning process?

### *Stakeholders*

- Who will be affected by the team's plans?
- Who can support ***OR*** undermine the work of the team?
- Who can provide information to assist the team?

### *Barriers and Strategies*

- What barriers to successful implementation of the team's plans can be identified?
- What are some possible strategies to avoid or deal with these barriers?

## Stage Two: Writing the Plan

***What are the action steps needed to produce a written plan?***

***Who will take responsibility to assure that each step is accomplished?***

***What are the timelines for the plan?***

***How can your team address each of the following key elements in your plan?***

- Vision and Mission
- Strategies for Goals and Objectives
- Scope of the Plan
- Training and Staffing Requirements
- Evaluation Criteria
- Technical Standards
- Cost Estimates
- Glossary of Terms
- Upgrading Equipment and Software
- Maintaining Equipment

**ACTIVITY:**
*Divide into small groups and brainstorm how the team might address key elements of the plan. Make a record of the discussion and report to the entire group.*

## Stage Three: Evaluation

***How will the team evaluate the success of the implementation process to determine:***

- When and how often the plan and process will be evaluated?
- Whether the goals and objectives were achieved?
- To what extent were the desired outcomes achieved?
- Whether the outcomes match the team's expctations?
- What are the next steps to follow up the implementation of the plan?
- How the work of the team will be communicated to all stakeholders?

## Commitment

***ACTIVITY:***
Brainstorm and chart responses to the following questions.

***What strategies might be used to gain buy-in and commitment to the team's plans?***

***How can the team build a collaborative network to build support, increase the capacity of the team, and provide for continous improvement in teaching and learning?***

## Suggested Readings


Becker, H. J. (1990, October). *Computer-based learning systems in the elementary and middle grades: A critical review and synthesis of evaluation reports.* Baltimore, Md.: Johns Hopkins University, Report No. 48, pp. 1-23.

Clinton, W.J., and Gore, A., (1993). *Technology for America's economic growth, a new direction to build economic strength.* Washington, DC: GPO.

Collins, A. (1991, September). The role of computer technology in restructuring schools. *Phi Delta Kappan,* pp. 28-36.

D'Ignazio, F. (1990, September). Integrating the work environment of the 1990s into today's classrooms. *T.H.E. Journal,* pp. 95-96.

Dwyer, D.C., Ringstaff, C., & Sandholtz, J.H. (1991, May). Changes in research beliefs and practices in technology-rich classrooms. *Educational Leadership,* pp. 45-52.

*K-12 technology planning Tool. EducQuest.* (1992). (Multimedia planning kit.)

Sheingold, K., & Hadley, Martha. (1990, September). *Accomplished teachers: Integrating computers into classroom practice.* Center for Technology in Education, Bank Street College of Education, pp. 1-30.

Southern Regional Education Board.(1992). *A proposal for educational technology partnerships to help reach America's educational goals.* Atlanta: Author.

Stakenas, R. G., Tishkin, D. P., & Resnick, M.M. (1992) *Best practices in developing teachers; knowledge and skills in using instructional technology.* Tallahassee, FL: Center for Policy Studies in Education, Florida State University.

*"Teaching, learning & technology: A planning guide."* (1991). Apple Computer, Inc. 1991 (Multimedia planning kit.)

Thorburg, D. D. (1992). Edutrends 2010: *Restructuring, technology, and the future of education.* San Carlos, CA: Starsong Publications.

## More Videotapes from SERVE

*SERVE produces a variety of VHS tapes that give stakeholders in education the opportunity to see school improvement and reform initiatives in action.*

***Passages***: Continuity from Pre-School to School- A visit to six schools with exemplary programs that guide young children from home to school and address their many needs. (30 min., VT PST)

***Southern Crossroads*** - Noted demographer Harold Hodgkinson examines demographic trends in the Southeast and discusses the challenges and opportunities they present. (30 Min., VTSCR)
*Special: Order Southern Crossroads publication and videotape for only $25 (PO2)

***Drug-Free Schools: A Generation of Hope*** - An examination of six key characteristics of effective school programs to reduce and prevent student drug use. (30 min., VTDFS)

***Journey Toward Change*** - Offers ideas, strategies, and inspiration to school improvement teams. A complementary film to Hot Topics: Comprehensive School Improvement. (25 min,. VTCSI)
*Special: Order report and tape for $25, (PO1)

***Successful Mathematics and Science Practices:*** **General Audiences**- A close look at exemplary mathematics, science, and technology programs in several schools in the Southeast. (30 min,.VTMS3)

***Policymakers***-A panel discussion with the region' Chief state school officers, business leaders, and others on promoting change; features exemplary school programs in mathematics, science, and technology. (60 min., VTMS6)

***Teachers/Practitioners***-A panel discussion with award-winning teachers on how to implement innovative programs and practice; features exemplary school programs in mathematics.

## Order Form

**Name:** _____

**Title:** _____

**Address:** ( ❒ home ❒ work)

_____

_____

**City:** _____

**State:** _____ **Zip** _____

**Phone:** _____

**FAX:** _____

**Videotapes are $19.95 each**
**OR**
**Special packages with related publications are $25.00.**

*Non-exempt Fla. residents must add 6% sales tax.*
*$2.00 shipping per order.*

| Qty. | Videotape | Item# | Price |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| Sales tax and shipping : | | TOTAL | |

**Mail to: NEFEC/SERVE, Route 1, Box 8500**
**3841 Reid Street, Palatka FL 32177**
***For ordering information please call:***
***1-800-352-6001***